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ELEMENTS
OF THE
THEORY
AND
PRACTICE OF PHYSIC.

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ELEMENTS
OF THE
THEORY AND PRACTICE
OF
PHYSIC,

DESIGNED FOR THE USE OF STUDENTS.

BY
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ELEMENTS

OF THE

THEORY AND PRACTICE



PHYSIC

PART II. CHRONIC DISEASES.

CHRONIC DISEASES OF THE LUNGS.

Class I. Chronic Diseases of the Lungs.

Class II. Chronic Diseases of the Lungs.

GEORGE GREGORY, M.D.

Author of "The Elements of the Theory and Practice of Medicine."

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Class VII. Chronic Diseases of the Lungs.

Class VIII. Chronic Diseases of the Lungs.

Class IX. Chronic Diseases of the Lungs.

Class X. Chronic Diseases of the Lungs.

Class XI. Chronic Diseases of the Lungs.

Class XII. Chronic Diseases of the Lungs.

CONTENTS.

	Page.
PART II. CHRONIC DISEASES	1
PRELIMINARY REMARKS	3
 CLASS I. CHRONIC DISEASES OF THE ENCEPHALON	 7
Chap. 1. Character, general Pathology, and Con- nexion of the chronic Diseases of the Encephalon	 <i>ib.</i>
Chap. 2. Apoplexy	22
Chap. 3. Palsy	39
Chap. 4. Epilepsy	57
Chap. 5. Mania	76
Chap. 6. Chorea	95
Chap. 7. Tetanus and Hydrophobia	107
<i>Tetanus</i>	<i>ib.</i>
<i>Hydrophobia</i>	116
Chap. 8. Neuralgia	126
 CLASS II. CHRONIC DISEASES OF THE THORAX ..	 133
Chap. 1. Bronchocele	<i>ib.</i>
Chap. 2. Dyspnœa and Asthma	144
<i>Asthma</i>	148

	Page.
Chap. 3. Hooping Cough - - - - -	160
Chap. 4. Chronic Affections of the Heart - - - - -	171
<i>Angina Pectoris</i> - - - - -	177
Chap. 5. Asphyxia - - - - -	187
 CLASS III. CHRONIC DISEASES OF THE CHYLOPOI- ETIC VISCERA - - - - -	 202
Chap. 1. Dyspepsia - - - - -	<i>ib.</i>
Chap. 2. Jaundice - - - - -	225
Chap. 3. Diarrhœa and Cholera - - - - -	240
<i>Diarrhœa</i> - - - - -	242
<i>Cholera</i> - - - - -	249
Chap. 4. Colic and Ileus - - - - -	255
Chap. 5. Worms - - - - -	265
Chap. 6. Infantile Fever and Marasmus - - - - -	275
Chap. 7. Abdominal Hæmorrhage - - - - -	286
<i>Hæmorrhoids</i> - - - - -	290
 CLASS IV. CHRONIC DISEASES OF THE URINARY AND UTERINE SYSTEMS - - - - -	 296
Chap. 1. Lithiasis - - - - -	<i>ib.</i>
Chap. 2. Diseases of the Kidney - - - - -	314
Chap. 3. Amenorrhœa and Chlorosis - - - - -	322
Chap. 4. Menorrhagia and Leucorrhœa - - - - -	334
Chap. 5. Hysteria - - - - -	343
Chap. 6. Ovarial Dropsy - - - - -	351
 CLASS V. CHRONIC CONSTITUTIONAL DISEASES - - - - -	357
Chap. 1. Scrofula - - - - -	<i>ib.</i>
Chap. 2. Rickets - - - - -	369

	Page.
Chap. 3. Scurvy - - - - -	375
Chap. 4. Hæmorrhœa petechialis - - - - -	380
Chap. 5. Diabetes - - - - -	387
Chap. 6. Pathology of Dropsy - - - - -	397
Chap. 7. Dropsy of the different Cavities - - - - -	407
<i>Ascites</i> - - - - -	408
<i>Hydrothorax</i> - - - - -	411
<i>Anasarca</i> - - - - -	413
Chap. 8. Chronic cutaneous Diseases - - - - -	420
(<i>Strophulus, Porrigo, Acne, Herpes,</i> <i>Lepra, Elephantiasis, Psora.</i>)	
APPENDIX - - - - -	433
<i>Formulae Medicamentorum</i> - - - - -	435

PART II.

CHRONIC DISEASES.

PRELIMINARY REMARKS.

THE term chronic disease has been employed by physicians in a double signification, which, though sufficiently intelligible to those who have had opportunities of seeing disease extensively, may, without previous explanation, become the source of some embarrassment to the student. In the perusal of the former volume this may perhaps have been already experienced; but it is now more particularly necessary to clear up any such difficulties, as chronic diseases are henceforth to be the sole objects of investigation.

The term *acute*, in medical language, is in strictness applied to such diseases as run a short and defined course:—*chronic*, to such as are lingering, and of uncertain duration: but, in common discourse, acute and chronic are frequently taken in the sense of *febrile* and *apyrexial*, because febrile diseases, for the most part, run through their stages rapidly,

while such as are unattended by fever, are usually of long duration. There is sufficient foundation in nature for both these pathological principles to entitle the physician to employ the terms in such a sense ; but it is necessary to apprise the student, that they are by no means of universal application. The history which has been given of consumption, of chronic rheumatism, and of chronic peritonitis, will be sufficient to show, that diseases attended with a certain degree or kind of fever, are sometimes tedious in their progress, and irregular in their periods and symptoms. In the present volume it will be shown that the converse of this proposition holds equally true, and that diseases, unattended by fever, are sometimes rapid in their progress, and uniform in their symptoms. Apoplexy and hydrophobia may be taken as examples. These must be viewed, however, as *exceptions* to a general rule ; or rather as facts supporting the opinion formerly urged (Introduction, page 2), that the nature of the subject renders fruitless any attempt to give a *perfect* idea of diseases by considering them separately and piecemeal,—that is to say, as exclusively general or local, external or internal, acute or chronic*.

* The ancients called those diseases acute, which being seated chiefly in the fluids, and attended with a rapid ebullition of them, run their course quickly. On the other hand, they called such diseases chronic, as proceed from a vitiated condition of the solids of the body, or from preternatural grossness of the fluids, on which account they either move very slowly towards concoction, or else never reach it.—See *Baglivi de Praxi medica, lib. ii. cap. 1.*

The general character of chronic diseases may be viewed as the reverse of that which distinguishes diseases of an acute kind. Throughout the latter a considerable similarity of pathology will have been observed to prevail. There is a remarkable uniformity also in their symptoms and periods. They run their course in a short time—often in a defined time. In all of them may be traced a disposition to terminate in the recovery of health. Medicine exerts over the greater number of them a very obvious power; and the principles of their treatment may, in most instances, be considered as tolerably well ascertained.

Chronic diseases, on the other hand, are very tedious: some of them may even be present in one shape or another during the whole course of life. In their progress they are very irregular. The protæan forms which they assume not only perplex the practitioner, but oppose, at the same time, the most serious obstacles to their accurate description. Though not commonly, or necessarily, accompanied by fever, yet feverish symptoms may arise in all of them, at any period of their course. Much obscurity pervades their pathology. The reasonings concerning some of them do not readily assimilate with the views entertained of other disorders. The principles of treatment in chronic diseases are neither uniform nor well understood. In many instances, indeed, they are wholly unknown; but were they even better ascertained, it is doubtful how far the physician could avail himself of such knowledge. In

the cure of chronic diseases, indeed, neither fortune nor art avail him much. It is seldom that he observes in them any disposition to terminate spontaneously in the recovery of health, and they are unquestionably much less under the control of medicines than acute diseases.

Although this may be the general character of the class of diseases which form the subject of the present volume, it is not on that account to be supposed that they are less worthy than others of attentive examination. The practical physician will find abundant occasion for the exercise of his skill, if not in the cure, at least in the relief of these complaints; and to the pathologist, chronic diseases are an endless subject of curious investigation. Their history and pathological relations, indeed, involve some of the most abstruse and recondite points of medical literature. To lay open and explain these, as far as the author's knowledge extends, and the state of the science admits, will be a principal object with him in the present volume. Where he fails in throwing light on the difficulties which he may encounter, it will at least afford him satisfaction to have suggested fit subjects for the inquiries of those who may come more qualified for the task.

CLASS I.

CHRONIC DISEASES OF THE ENCEPHALON.

CHAP. I.

CHARACTER, GENERAL PATHOLOGY, AND CONNEXION OF THE CHRONIC DISEASES OF THE ENCEPHALON.

Of Neurosis, or disturbed Function of the nervous System, independent of Fever——Diseases arranged under this Head——Their chief Characters——Coma——Convulsion——Mental Aberration——States of the Brain in these Diseases——Chronic Inflammation——Congestion——Imperfect Supply of Blood——Affection of the Brain and Nerves independent of the circulating System——Pressure——Other Points of Connexion among the chronic Diseases of the Encephalon——Their Conversion into each other——General Principles of their Treatment.

THERE are not perhaps, in the whole circle of medical science, any diseases offering so many interesting points of research to the speculative physician, as those which derive their character from disturbance of function in the brain and nervous system, independent of the presence of fever. They

may be associated together as the diseases of *primary neurosis*, and they constitute a series, which it cannot but be useful to examine in the first instance in a general manner. It will be found that they have a common character, and many points of mutual connexion. To explain these will not only be the means of preventing hereafter much needless repetition, but it will serve to impress upon the student the importance of those pathological relations among diseases, which serve equally to improve and to facilitate practice.

The diseases comprised in this series are apoplexy, palsy, epilepsy, mania, chorea, tetanus, hydrophobia, neuralgia; to which may be added syncope, asphyxia, hysteria, and hypochondriasis. Though deriving their character principally from a morbid condition of the nervous system, they are all more or less connected with disturbed function in other parts. The four last mentioned, however, are so intimately connected with disorder in other organs, that in the present division of the work I shall merely keep them before me, with a view to some points in their general pathology, reserving their separate consideration to future parts of the volume.

Physiology teaches, that among the several functions of the brain and nerves, of which some are well, and others only imperfectly ascertained, the principal are sensation, voluntary motion, and the manifestation of the mind. It is natural to expect,

that from disturbance in them the chief characters of the neuroses should be derived ; and accordingly we find that coma, convulsion, and mental aberration, are the three great classes to which we may refer the symptoms of these diseases.

1. Coma consists in the loss of sensation, thought, and *voluntary* motion. In this state of disease, however, the organs of involuntary motion preserve their functions, and consequently it is by the continuance of the pulse and of the breathing, that we distinguish between coma and the states of syncope and asphyxia. But though in this manner we are enabled to mark the diagnosis between coma and the *disordered* conditions of body with which it is liable to be confounded, there are two states, consistent with health, from which it cannot be distinguished by such a criterion ; I mean the states of *sleep* and of *intoxication*. In all cases of suspected coma, it is necessary for the safety of the patient and the credit of the practitioner, that this point should receive attention. If duly kept in view, there is no great probability of any error occurring ; for it is inattention to the circumstance, and not any difficulty in deciding upon it, when once suggested, from which mistakes have originated. Coma is distinguished from sleep by the impossibility of rousing the patient by shaking, noise, or otherwise. The smell of the breath will, for the most part, be sufficient to characterize the state of intoxication ; but in extreme cases there will always be difficulty, for actual coma may possibly have supervened. At all

times attention should be paid to the circumstances which *preceded* the attack; for by this means not only will ambiguity be prevented, but the physician will obtain such an insight into the causes of the disease and the habits of the patient, as will assist materially in directing his practice.

The abolition of sense and voluntary motion then constitutes perfect coma, and it is the distinguishing feature of apoplexy, the first disease which will be noticed in the present series. It remains to state, that the loss of these functions is not always complete. Partial deprivations both of sensation, thought, and voluntary motion, occur in the chronic diseases of the brain, and they afford many of the most prominent symptoms of such disorders. Of this kind are preternatural drowsiness, or lethargy, paralysis of particular muscles, indistinctness of vision, amaurosis. They are all referable however to the general head of coma.

2. The second set of symptoms occurring in the chronic diseases of the encephalon, may be classed together under the head of convulsion or spasm. The state of convulsion is commonly defined to be that wherein the *voluntary* muscles of the body are excited into action by powers independent of the will. It is not, however, peculiar to those muscles. Not unfrequently those of involuntary motion are similarly affected, the diaphragm for instance, and smaller muscles of inspiration, as in asthma, or the muscular coat of the stomach or intestines, as ob-

served in colic. It would appear indeed as if no muscular fibres were exempt from spasmodic contraction, excepting those of the heart.

Of the voluntary muscles of the body it has been remarked, that those which are most immediately under the influence of the will, and most frequently employed, are those principally affected in convulsive disorders, and the same observation will be found applicable to paralytic affections. Of this kind are the muscles of the eyes, eyelids, face, arms, and legs. Spasms of these muscles are observed in chorea, hysteria, and all the lighter forms of nervous affection; while spasms of the muscles of the neck, back, and belly, occur in tetanus, hydrophobia, epilepsy, and indicate a severer kind, or more aggravated *degree* of disease.

Convulsions have been divided into two kinds—the permanent, and that which alternates with relaxation; in other words, the *tonic* and *clonic*. Tetanus affords an instance of the one, hysteria of the other. The distinction is of little consequence, unless coupled with the pathological principle that the tonic or *tetanic* spasm is a disease of infinitely more importance than the *common* or clonic spasm. The former arises from causes over which we have little or no control, and is, at all times, a state of the utmost danger; while the latter is very frequently little more than the evidence of a peculiarly irritable disposition in the nervous system, and may exist, even to a great extent and for a long time, without

exciting any uneasiness for the ultimate safety of the patient. In all reasonings indeed concerning a disease accompanied with clonic or common spasm, it is necessary to look to the original constitution and temperament of the individual. There exists in some persons an *irritable* habit of body, a disposition in the system to be excited on slight occasions, and consequently, a more than ordinary tendency to spasm. This manifests itself even when any function of the body becomes, from *accidental* circumstances, disturbed. Such a habit of body has been denominated by some physiologists *the nervous temperament*. It is characteristic of the infantile period of life, and of the female sex. The distinction between this *irritable habit of body* and the *morbid state of convulsion*, though sufficiently apparent in common cases, is yet on many occasions a matter of considerable difficulty. In point of fact they will be found to run into each other by insensible degrees, constituting, as we shall afterwards show, one of the many interesting features in the pathology of epilepsy.

Independent of those convulsive actions of the whole body to which the term *fits* is popularly applied, there are a variety of *partial* convulsions, referable to this general head, which occur as evidences of chronic disease within the brain. Of this kind are, permanent contraction of the iris, irregular contractions of the muscles of the eye, constituting *squinting*, and the convulsions of the pterygoid muscles, commonly called *grinding of the teeth*.

3. The symptoms by which chronic disease of the brain manifests itself, may be referred, in the third place, to the head of *vesania* or mental aberration. Of this disordered condition of the brain physicians have noticed many varieties. It may be either temporary or permanent; that is to say, it may assume the form of delirium or mania. It may be either general or partial; that is to say, the powers of thought may be completely lost, as in the case of *idiotcy*; or some one faculty of the mind may be disturbed, while others remain perfect, or only partially impaired. Sometimes, for instance, the imagination labours under a strong and unconquerable delusion, while the memory is perhaps still enjoyed in full perfection. This constitutes the highest grade of mental aberration, and is the characteristic feature of *mania*. At other times the memory fails, while the powers of perception are still uninjured. This is a frequent consequence of severe injuries of the head, and of paralytic seizures. It is a very common attendant also on that morbid change in the structure of the brain, which frequently occurs in the latter periods of advanced life.

Aberrations of mind, lastly, vary in their character and intensity. Sometimes they are attended with fierce excitement, violent aversion, and a disposition to commit acts of violence on themselves or those around them. At other times the delusion of mind is accompanied with a sense, hardly less formidable, of melancholy and settled despondency. To

the lighter shades of this disordered condition of the mind, physicians have commonly applied the term *hypochondriacism*. Occasionally, we find maniacal aberration coupled with a perfect tranquillity and self-content.

After noticing the general character of the diseases usually called *nervous*, I proceed to inquire into the opinions commonly entertained regarding their pathology and proximate cause. And here it is to be remarked, in the first place, how manifestly a large proportion of such cases are connected with, and therefore probably dependent upon, certain disordered states of the *circulating* system. That this principle is not of universal application, I shall presently have occasion to show; but, in the mean time it will be right to point out what those derangements of the circulating system are, which are so closely interwoven in the pathology of nervous diseases.

1. The first of these is *chronic inflammation* of the substance of the brain, or of its meninges. That this is the true *proximate cause* of many cases of chronic disease within the encephalon, is abundantly proved by the appearances found on dissection; which are, depositions of coagulable lymph upon the surface of the brain, thickening of one or more of the membranes, and suppuration. These *unquestionable* marks of inflammatory action are, however, but rarely met with, in comparison with two others, frequently adduced as evidences of the same state

of disease;—I mean, increased vascularity within the cranium, and serous effusion between the membranes, or within the ventricles. These appearances are very common in different diseases, but in none are they so generally met with as in chronic affections of the nervous system. There are few instances, indeed, of any morbid change of structure in the brain existing without them. Pathologists have differed, however, in their estimate of the importance to be attached to them, especially to that of serous effusion. The general opinion appears to be, that though it cannot be assumed as a proof of the existence of actual inflammation within the brain, it must yet be allowed to denote a degree of morbid *excitement* of the vessels of the brain, not far removed from inflammatory action.

2. The second of the morbid conditions of the circulating system, connected with nervous disease, is *simple congestion* of blood in the blood-vessels. This may arise either from an extraordinary flow of blood into the arteries of the brain, or from the difficulty experienced in the return of blood to the heart. The peculiar structure of the large venous trunks of the brain is calculated to lead, under certain circumstances, to *stagnation*, or, as it is now more commonly called, *venous congestion* in the head. That such a state of the circulating system in the encephalon does occasionally exist, there cannot, I presume, be a doubt; but it may be fairly questioned how far we are able to judge of its existence, with any degree of accuracy, by

examination made after death. It is at least sufficiently ascertained, that that fulness in the vessels of the brain, so often found upon dissection, and supposed to denote *congestion*, depends in a great degree on the position in which the body had lain previous to examination.

3. The third of those states of disease to which our attention must be paid in this inquiry, is *hæmorrhagy*. The rupture of a blood-vessel within the brain acknowledges many of the laws which affect other hæmorrhagies; but the want of outlet for the effused fluid, the peculiar delicacy of the structure of the brain, the importance of its functions, and, above all, the remarkable effects of pressure upon its substance, give to the *hæmorrhagia cerebri* an interest far superior to what belongs to any other form of hæmorrhagic disease. The symptoms produced by effusion of blood within the brain, are, with few exceptions, those of apoplexy; and the nature and varieties of cerebral hæmorrhagy will accordingly constitute the most important feature in the pathology of that disease.

4. The fourth morbid condition of the circulating system, observed in certain diseases of the nervous kind, is *an imperfect supply of blood*. The brain, like every other organ of the body, is dependent for the due exercise of its functions on the circulation. It can neither perform them properly when the supply of blood is too great, nor when it is defective. Syncope is the usual result of a want

of due supply of blood to the brain; but convulsions occasionally arise from the same cause, as is well exemplified in the instance of puerperal hæmorrhage. It is not often that we have to apply this principle in the pathology of nervous diseases, but in a general view of the subject, such as we are now taking, it would have been improper to omit it.

5. In like manner, it becomes necessary to notice a fifth state of the circulating system which is occasionally present in nervous diseases;—I mean the supply of blood imperfectly oxygenated, and therefore unfit for supporting the functions of the nervous system. This principle, it is true, like the last, is very limited in its application, but it enters into the pathology of apoplexy, and is the foundation of many of our reasonings concerning asphyxia.

I have already stated, that there are states of disease of the brain independent, as far as we can judge, of the circulating system.

1. The first of these is simple compression. This may arise either from a coagulum of blood, a soft tumour, a bony excrescence, a depressed portion of the skull, or the presence of some foreign body. The effects of pressure vary extremely, according as it takes place *suddenly* or *gradually*. In most instances, as already observed, the symptoms occasioned by pressure on the brain partake of the *comatose*, or *apoplectic* character; but instances are upon record, particularly in the case of gradual

pressure, where such a state has been followed by symptoms, not of insensibility, but of high nervous excitement—by mania and convulsions.

2. There still remains to be stated one principle of very general application in the pathology of nervous disorders. Hitherto we have had some cognizable cause for the symptoms—the effusion of blood, inflammation, or the pressure of a tumour. But it is to be remembered, that there exists an affection of the brain and nerves equally independent of pressure, and of all disturbance in the circulation within the encephalon. The best illustration of this principle is afforded by the phænomena of the narcotic poisons, where coma and convulsion are produced by means, which obviously act on the sentient extremities of the nerves, and which, we may fairly presume, deprive the nervous substance of its *mobility*, or of its power of receiving or communicating impressions. Such a pathological principle is necessarily obscure, from the very nature of the functions concerned, but it will be found an indispensable one on many occasions, as, for instance, in any attempt at explaining the pathology of tetanus and hydrophobia, or in elucidating those varieties of epilepsy and chorea which depend upon the sympathy of the brain with some distant organ. The principle being once established, there remains no longer any difficulty in understanding why, in a great variety of cases of chronic disease of the brain, no morbid appearances of any kind are found upon dissection. This interesting fact, indeed, has been denied by

some, and explained away by others; but it is too frequent and too obvious to be thus got rid of. The student in medicine may here receive an important lesson. He may learn from this, that the causes of *death* are often as obscure as the sources of life and health; and that morbid anatomy, with all its acknowledged advantages, may, if pursued too exclusively, injure rather than forward the conclusions of the pathologist.

The observations now offered on the character and general pathology of nervous diseases, will tend to point out the very intimate connexion subsisting among them. The same thing will be further illustrated by a view of their predisposing and exciting causes, by a consideration of their mutual conversion, and, lastly, by a survey of the principles of treatment applicable to the greater number of them. But before adverting to these topics, I would wish (without, however, going into any detail on the subject) to notice the attempts which have been made to connect particular symptoms observed during life with certain appearances found after death;—in other words, to establish *minute diagnosis* among the morbid affections of the several structures contained in the encephalon. Pathologists, more especially those of recent times, have been at pains to distinguish inflammation of the arachnoid, from a similar affection of the other membranes;—extravasation into the ventricles, from extravasation with laceration of the substance of the brain;—disease of the anterior, from disease of the posterior lobes of the

brain;—injury of the brain, from injury of the medulla oblongata. It would be presumptuous to say, that attempts of this kind are altogether nugatory; but it cannot be denied, that hitherto very little success has attended them; that the rules laid down by authors are subject to such numerous exceptions as to interfere greatly with their application in practice; and lastly, that no reasonable hope exists of deriving from them, even if considerably improved, any portion of practical advantage.

It is of more importance to trace the *analogies* among the chronic diseases of the encephalon than their minute shades of difference; and we shall be assisted in this, in the first place, by considering the similarity, and even, in many cases, the identity of their predisposing and exciting causes. Mania for instance, and epilepsy, are hereditary. The exciting causes of epilepsy are for the most part those also of apoplexy and palsy. Chorea, hysteria, and many varieties of epilepsy, have a common origin in a disordered state of the stomach and bowels. But in no way is the connexion among these diseases so strikingly displayed as in the circumstance of their mutual conversion, and in their manner of running into each other by insensible degrees. I have already alluded to this in the case of hysteria and epilepsy, but it is equally well marked with regard to palsy and apoplexy, syncope and convulsion, convulsion and mania, mania and apoplexy. One individual of a family has had epilepsy, while others have been deranged. Epileptics

commonly die with comatose symptoms. Neuralgic affections are not unfrequently succeeded by amaurosis, or by apoplexy. Instances of this important principle in pathology need not be multiplied, as they must be familiar to all who have enjoyed any share of general practice.

It remains only that I notice the principles of treatment applicable to the greater number of the diseases which are now under consideration, and it will be found, that the pathological analogies subsisting among them are strikingly confirmed by the effects of the *juvantia* and *lædentia*. The depleting and lowering system adapted to the particular circumstances of each patient, and the peculiarities of each disease, is that upon which the physician places his chief reliance, and it is, with some few exceptions, of powerful efficacy in all of them, whether exhibiting the character of coma, of convulsion, or of mental aberration. This is the great principle kept in view, whether we employ bleeding, purging, leeches, cupping, local cold, blisters, issues, and setons; or content ourselves with remedial means of a less formal though not less useful character, such as a cooling spare diet, regular exercise, or a course of aperient mineral waters. By these means, early, steadily, and judiciously applied, we may often do a great deal towards the relief, or permanent cure, of the chronic diseases of the brain, while without them, and depending upon stimulants and antispasmodics, our expectations will be but too often baffled.

CHAP. II.

APOPLEXY.

*Premonitory Symptoms—Varieties in the apoplectic Seizure
—Appearances presented during the apoplectic Fit—
Prognosis—Appearances on Dissection—Predisposi-
tion to Apoplexy—Exciting Causes—Speculations con-
cerning its proximate Cause—Subdivision of Apoplexies
—Treatment to be pursued during the Fit—Prophy-
laxis.*

IN the last chapter, I had occasion to explain the sense in which physicians employ the term coma; and I then stated, that apoplexy is a disease of which coma constitutes the leading feature. Coma, or the abolition of the functions of the brain and nerves, may be the consequence of external injuries, or it may occur without any obvious assignable cause. In the former case, it is an object of attention to the surgeon, and is often remediable by surgical operation. In the latter case, it falls under the cognizance of the physician, and is by him denominated spontaneous coma, or apoplexy.

It is very seldom that this dreadful visitation is experienced without the occurrence of symptoms to

warn the patient of its probable approach. There are few instances, indeed, of any kind of severe disease occurring without some premonitory symptoms; but they are not often so unequivocal as those which indicate the apoplectic tendency. With a view to practice, such symptoms are of infinitely more importance than those of the fit itself; and they accordingly require the most serious attention from the physician. For the sake of perspicuity, they may be arranged according as they affect the head generally, the external senses, the internal senses, or the organs of voluntary motion.

To the first class belong pain of the head (generally a dull pain, with a sense of weight, but occasionally a more acute pain, accompanied with the feeling of the head being bound round by a cord or wire);—giddiness, particularly on stooping, or any attempt to turn the head quickly round;—throbbing of the temporal arteries.—To the second class belong transient deafness, ringing in the ears, epistaxis, obscurity or irregularity of vision, transient blindness.—To the third, stupor, drowsiness, incoherent talking, a state resembling intoxication, disturbed sleep, failure of the memory, loss of temper.—To the fourth, twisting of the mouth, falling of the eyelid, numbness and weakness of a finger, dragging of the leg, stammering.

After experiencing for a longer, or shorter time, one or more of these warnings, the patient falls into the apoplectic fit; and Dr. Abercrombie has well

described the several ways in which this takes place*.

1. In the most usual form of apoplectic seizure, the patient falls down *suddenly*, deprived of sense and motion, and lies like a person in a deep sleep. He neither hears, nor sees, nor feels. Unconscious of every thing around him, he is alike insensible to the exertions of his medical attendants, and the anxieties of his friends. The suddenness of the attack is that feature of the disorder which most immediately impresses itself upon the notice of observers ; and being so very general, the disease has from this circumstance in all ages received its name.

2. The second form of apoplectic seizure commences by a sudden attack of violent pain of the head, accompanied with paleness of the face, sickness at stomach, vomiting, and transient loss of recollection. The patient in some instances falls down in a state resembling syncope, but recovers in a few minutes, and is able to walk. After a few hours, however, the headache continuing, he becomes oppressed, and *gradually* sinks into perfect coma.

3. The third form of apoplectic seizure begins with a sudden attack of *palsy* of one side, with loss of speech, which after the lapse of some hours passes gradually into apoplexy.

* Edinburgh Medical and Surgical Journal, vol. xiv. p. 554.

In whichever way the apoplectic fit commences, there are certain appearances presented during its continuance, which merit attention. The pulse, at first, is commonly small and irregular; but as the system recovers from the shock, the pulse becomes full and strong, and is generally slower than natural. Respiration is much embarrassed, being always slow, and occasionally irregular. In all the severer degrees of the disease, this laborious breathing is accompanied by stertor; and a frequent appearance is that of foam, or frothy saliva, excreted from the mouth, and blown away from the lips with considerable force. This latter symptom has always been looked upon as indicative of the greatest danger.

The skin is commonly warm, and bathed in a copious perspiration. In the worst cases of the disease, a cold clammy sweat has been observed. The face is generally pale; the cornea dull and glassy; and the pupils permanently dilated. The teeth are closely clenched; and the power of swallowing, though seldom wholly lost, is for the most part so much impeded, as to oppose the most serious obstacles to the administration of remedies. The bowels are torpid, as is usual in all cases of cerebral oppression, and they resist the action even of powerful cathartics. If blood is drawn from the arm, the coagulum is commonly firm; and Sir Gilbert Blane has noticed, that it is in most instances covered with the inflammatory crust.

47 m The duration of the apoplectic fit varies from two or three hours to as many days. Thirty hours have been the average duration of those which have fallen under my own observation. Instances, indeed, are on record of *sudden death* from apoplexy; but in many of these cases there is reason to suspect that the immediate cause of death was rather to be found in some affection of the heart, or large vessels in its neighbourhood, than in injury to the brain. Genuine apoplexy, commencing in the manner I have described, and attended with all the symptoms just enumerated, almost always ends fatally. When a recovery, either perfect, temporary, or partial, takes place, it will usually be found that some of the more decided evidences of perfect coma have been wanting: the patient has given evidence of feeling when his limb is grasped, or the lancet used; the pupil has obeyed in a certain degree the stimulus of light; the mouth has not been firmly closed, or the power of swallowing wholly lost; there has been no stertor, or foaming at the mouth; nor were the premonitory symptoms strongly marked. Under such circumstances our prognosis may be somewhat more favourable, though it should even then be guarded by the reflection, that if recovery does take place, we must seldom expect it to be perfect. An incurable palsy may remain; or the memory may wholly or partially fail; or an imbecility of mind, approaching to mania, may be left. But besides this, in all cases where a decided apoplectic fit has been experienced, a relapse is to be dreaded, and recovery from a second attack is seldom if ever witnessed.

The opportunities which the fatality of this disease has afforded to the physician, for prosecuting his researches into its nature and seat, have not been lost; and we have accordingly a most extended record of the appearances found on dissection in apoplectic cases. Their variety is very great, and must be fully appreciated before any attempt can be made to explain the pathology of the disease*. Extravasation of blood in some part of the encephalon, is by far the most common appearance, and is that which is generally to be anticipated. Such extravasation may take place between the membranes of the brain, on its surface, about its basis, within its ventricles, or in the midst of its substance. The quantity of fluid effused is as various as its situation; and the violence of the symptoms is found to bear a reference partly to the *quantity*, and partly to the particular *seat* of extravasation. An extensive effusion of blood is equally to be dreaded wherever it takes place; but a slight effusion is generally stated, and probably with justice, to be more dangerous in certain situations than in others. It is believed, for instance, to be much more alarming and attended with more formidable symptoms when occurring on the medulla oblongata, than in the anterior lobes of the brain.

* The student who wishes for further information on this subject, or on that of apoplexy generally, may consult with the greatest advantage the first volume of Dr. Cooke's "Treatise on nervous Diseases," where, besides much useful original matter, he will find references to all the best authorities on the disease.

The next most usual appearance in those who die of apoplexy, is the effusion of serum, either upon the surface of the brain, or within the ventricles. In some cases we meet with turgescence of the smaller vessels, or of the great sinuses of the brain, but without effusion either of blood or serum.

These are the common appearances presented on examination of those who die of apoplexy; and, considering their frequency, it is undoubtedly a surprising circumstance, that every now and then, after the most unequivocal symptoms, the head presents on dissection nothing morbid or uncommon. Some pathologists explain this by supposing, that effusion or disorganization may have taken place, but in a degree so minute as to escape observation. Others imagine, that more decided appearances may have existed, but were overlooked in the hurry of examination. A third class maintain, that there may be morbid phænomena present during life, which disappear prior to dissection; while others avow their persuasion, that in some other part of the body (the thorax, for instance, or spinal marrow), the cause of death existed, and might by judicious examination have been detected. These arguments may have weight in particular cases, but their *general* tendency is disproved by an extended survey of the chronic derangements of the brain and nervous system.

The predisposition to apoplexy has attracted much attention from medical authors, and many

contradictory opinions have been brought forward concerning it.

1. The tendency to apoplexy is given in the first place by certain *conformations of body*. The apoplectic *make* has been remarked, indeed, in all ages. A large head, a short thick neck, a florid complexion, broad shoulders, short stature, with a tendency to corpulency, are the prominent features of the apoplectic figure. This formation of body being often hereditary, a tendency to the disease might naturally be expected to prevail in particular families; but independent of this hereditary predisposition from peculiarity of organization, there may exist a *constitutional* tendency to disease of the head, the knowledge of which may materially assist in forming a right judgment on the origin and probable tendency of particular symptoms.

2. The predisposition to apoplexy is connected in the second place with a certain *period of life*. Hippocrates said that apoplexies were chiefly generated between the fortieth and sixtieth year; and Cullen further remarks, that as life advances, the tendency to this disease increases. There is no doubt that in early life it is rarely met with; but it is far from being uncommon between the twentieth and thirtieth year. By many pathologists it has been held that the greater liability to the disease at an advanced period of life, is owing to an ossified or otherwise diseased state of the coats of the cerebral arteries, which is stated to be then of frequent occurrence. It is sup-

posed to give increased facility to extravasation within the encephalon ; and the same morbid structure in other parts is imagined to lead to aneurism. There is probably some foundation for this opinion, though it may have been pushed too far by certain of its supporters. While we are ready to acknowledge, then, that the rupture of a blood-vessel within the brain may sometimes be connected with a diseased state of the coats of the arteries, we must not, on the other hand, forget, that in probably a larger proportion of cases, it is merely the result of a *morbid action* of vessels, analogous to that which takes place in hæmoptysis.

3. A predisposition to apoplexy is further given by such *habits of life* as tend to produce plethora generally, or to drive the blood in more than ordinary quantity upon the vessels of the brain. Hence it is that full living, the free use of wine, habitual intoxication, sedentary pursuits, too great indulgence in sleep, and habits of intense and long-continued thought, have always been accused of leading to apoplexy.

The principal *exciting* causes of apoplexy, are the distension of the stomach by a full meal, the immoderate use of wine or spirits, straining to evacuate a costive stool, violent exercise, very long or loud speaking, severe fits of coughing, tumours on the neck, stooping, the recumbent posture, and, lastly, violent passions of the mind. It is a singular circumstance, that both heat and cold, when in an ex-

treme degree, may occasion apoplexy. The coup de soleil of hot climates has been considered, on good authority, to be of the nature of apoplexy. The improper use of the warm bath has, under my own observation, brought on complete and fatal apoplexy. On the other hand, excessive cold produces a torpor and sleepiness, apparently of the comatose kind. This was strikingly exemplified in the celebrated adventure of Dr. Solander and Sir Joseph Banks on the mountains near the Straits of Magellan. The disposition to sleep is almost irresistible; but, in the emphatic language of Dr. Solander, whoever indulges it "wakes no more."

It belongs to this place to remark, that an apoplectic attack is not uncommon in the progress of other diseases. It occasionally occurs in fevers, small-pox, rheumatism, gout, and hooping cough; and it is a still more frequent consequence of organic diseases of the heart, more particularly of such as are attended with a strong bounding pulse, and in their course become complicated with dropsy.

I am unwilling to place in the catalogue of the exciting causes of apoplexy, some of those which have been mentioned by authors, because the very circumstance of naming them as such, involves the difficult question of the nature of the affection which they produce. To this class belong opium, tobacco, and the other narcotics, the carbonic acid and other irrespirable gases, certain poisonous vegetable matters (as the upas antiar, and woorara), and lastly

lightning. The consideration of their effects and of their mode of action will be reserved for discussion in the chapter on asphyxia.

In the remarks now offered, I have attempted, as much as possible, to confine myself to facts, and to avoid all allusion to the variety of opinions which have been entertained respecting the proximate cause of apoplexy, and consequently respecting the division of the disease into different species. These topics, however, must be acknowledged to be of no small importance, and it will be my endeavour to lay before the student such a view of them, as may assist him in unravelling the difficulties in which this portion of pathology is involved.

It has been the great object of pathological writers to discover some one morbid condition of the brain which is present in every case of apoplexy. Some have stated this to be *effusion*. Others have generalized further, and considered *pressure* as the real efficient cause of the apoplectic phænomena. A third class of pathologists have held with Dr. Abercrombie, that irregular or *interrupted circulation* is the general principle applicable in all cases of apoplexy.

Each of these opinions has been supported by ingenious arguments; and that in particular which attributes the disease to *pressure* on the cerebral mass or its appendages, is undoubtedly applicable to a very large proportion of cases. The proof of its

applicability as a proximate cause *in all cases*, is however, even in this instance, highly defective. Extravasation of blood is the most usual source of that pressure which occasions apoplexy, yet extravasated blood has been on several occasions found in the brain without any comatose symptoms having existed during life. The same thing is even still better ascertained with regard to serous effusion and sanguine congestion, which are presumed to be the next most usual sources of pressure in apoplectic cases. These facts, taken in connexion with those which substantiate the frequent occurrence of apoplexy without leaving any cognizable traces of disease after death, appear to warrant the opinion, that the single principle so long sought for by pathologists does not exist, and that in point of fact the apoplectic state is the result of different morbid conditions of the system.

These speculative notions concerning the proximate cause of apoplexy have not been confined to the closet of the pathologist; they have given occasion to the subdivision of apoplexies into different species, important, it is said, in practice, as leading to diversities of treatment. By many of the distinguished systematic writers in medicine, great stress was laid on the division of apoplexies into *sanguineous* and *serous*, and the doctrine continues, in a certain degree, to influence the notions and practice of modern physicians. Certain symptoms have been described as peculiar to the serous apoplexy, and plans of treatment have been recommended, which

are adapted only to that species of the disease. These conclusions, however, are neither borne out by facts, nor rendered probable by pathological reasoning. The distinctive characters described by authors, are seldom met with so strongly characterized as to warrant an opinion concerning the exact nature of the case. Even where they have been the most distinctly marked, the appearances on dissection have frequently disappointed the expectations of the practitioner. Pathological reasoning would incline us still further to distrust such distinctions, as it would tend to show that the effusion of blood and that of serum depend here, as in many other cases, upon the same general cause. As far, then, as they simply express a fact discovered after death, the terms *serous* and *sanguineous* may be admitted; but they can never with propriety be employed during life under the impression of establishing more accurate diagnosis, or of facilitating practice.

If these objections apply to the old division of apoplexies into sanguineous and serous, there are others no less forcible, which may be urged against the modern distinctions of *meningeal* and *cerebral*, or of simple apoplexy, and of apoplexy complicated with paralysis. But these have never been formally acknowledged by any writers in this country, and no practical benefit, that I am aware of, would result from their adoption, were it even ascertained that there was a foundation for them in nature. I have, therefore, deemed it unnecessary to enlarge on the subject in a purely elementary work.

The doctrines here laid down are now to be applied to an illustration of the principles and details of treatment proper in apoplectic cases. From the remarks just offered on the distinction of apoplexies, we may, in the first place, deduce one very important rule, viz. that all cases of apoplexy are to be treated on the same general principles; and that though the details must necessarily be varied, according to the age and constitution of the patient, the severity of the disease, or other accidental circumstances, there is no class of apoplectic affections which requires a *distinct* system of management.

In the actual paroxysm of apoplexy, the patient should be moved into a spacious apartment, and cool air freely admitted around him. His head should be raised; ligatures of all kinds, especially about the neck, should be loosened; and the legs and feet may with propriety be placed in warm water. A strong disease, however, as Aretæus observed, requires a powerful remedy, and blood-letting has at all times been resorted to as holding out the best prospect. Many objections have been urged against it, but it still continues, and must for ever continue to be employed. In the most aggravated form of the disease, indeed, neither bleeding nor any other remedial means can reasonably be expected to effect a cure; but there are no grounds for believing that, with common caution, the danger of the patient is *increased* by it. No one certainly would venture to advise repeated and indiscriminate abstraction of blood, without reference to its effects, or to any of

those rules by which we regulate the application of the lancet in other cases. This would be a blameable empiricism ; but at the same time the student should feel, that blood-letting is the only effectual remedy in apoplexy, and he should not be discouraged from it by any theoretical notions. The observations of Dr. Fothergill, and others who have opposed the employment of blood-letting, tend rather to establish the dangerous nature of the disease than the impropriety of the practice. We cannot, it is true, remove by this means blood which has been actually extravasated ; but we may prevent further effusion, and lessen general compression. In slighter cases we may relieve the excitement and tension of the vessels within the head, and possibly prevent effusion altogether.

On the first attack, therefore, blood should be drawn from the arm to the extent of one or two pounds ; and this should be repeated in four or five hours afterwards, unless very unequivocal symptoms of amendment have appeared. The propriety of pursuing the evacuation further, must be determined by the peculiar circumstances of the case. It ought to be known, that from six to eight pounds of blood have been taken from a person, by no means robust, before the disease began to yield. On the other hand (as Dr. Latham has well observed in commenting on the propriety of blood-letting in cases of sudden seizure *), attention must always be paid to the

* Transactions of the London College of Physicians, vol. vi. p. 248.

constitution of the patient; and it must be borne in mind that a practice highly proper in persons of corpulent habit, firm muscles, and florid complexion, would probably be detrimental in emaciated subjects, with flaccid muscles, cold extremities, and a small thready pulse.

The advantages of opening the temporal artery or jugular vein, in preference to bleeding from the arm, have often been insisted on, but apparently without sufficient reason. It is enough that the evacuation be made in a full stream, and carried to such an extent as to affect the system. Cupping from the nape of the neck is a powerful means of relieving tension within the cranium, and, as an auxiliary, may be resorted to in apoplectic cases with a fair prospect of advantage. In some constitutions, it may even supply the place of general blood-letting.

Every exertion is to be made to exhibit purgative medicines; but the clenching of the teeth and the paralytic state of the organs of deglutition often render this a matter of extreme difficulty. Some calomel, however, should be laid upon the tongue, and a strong infusion of senna with jalap given by teaspoonfuls, until a full effect has been procured. The operation of these medicines may be promoted by sharp purgative glysters.

Cold applications to the head have been found advantageous in some instances, and are certainly preferable to blisters. These are the only powerful

means of *generally acknowledged* efficacy, which we possess in the treatment of apoplexy. The exhibition of *emetics* has, indeed, been extolled by some as highly useful, and even as superior to blood-letting; but the practice has never been generally followed; and there is no small difficulty in understanding how it could be carried into effect in those severe cases, to which it has been stated to be particularly applicable. In the instance of an apoplectic seizure immediately succeeding a full meal, an emetic might be advisable; but even under such circumstances, it would be improper to rely upon it to the exclusion of other remedies.

Apoplexy being so very fatal a disease, it is incumbent on the physician, in all cases where he has reason to suspect a predisposition to it, to employ steadily such prophylactic measures as are calculated to avert the danger. A cool spare diet, abstinence from all fermented or spirituous liquors, regular exercise, abridging the usual number of hours allotted to sleep, keeping an open body, and, in some instances, establishing a drain by means of an issue or seton, are those on which his chief reliance is to be placed.

CHAP. III.

PALSY.

Relation of Palsy to Apoplexy——Distinctions among paralytic Affections——Cerebral Palsies——Hemiplegia——Appearances on Dissection——Paraplegia——Partial Palsies depending on Disease of the Encephalon——Palsy independent of any Affection of the Brain——Palsy from Cold——From Lead——Treatment of Hemiplegia and of Paraplegia——of Amaurosis——and of saturnine Palsy.

MEDICAL authors have almost uniformly agreed in uniting the consideration of apoplexy and palsy, and there can be no question but that these diseases are, in many of their great pathological features, very closely associated. There are points, however, in which they as widely differ, and it will conduce to a clearer understanding of what is known regarding the nature and varieties of palsy, if it is treated of as a distinct affection. A vast number of very intricate questions are involved in the consideration of palsy. To all the difficulties connected with the pathology of apoplexy, are added many peculiar to itself. These it will be my endeavour to point out to the notice of the student; but I shall not consider it incumbent upon me to examine into the merits of

the different speculations to which they have given rise.

A superficial survey of the phænomena of palsy would lead to a distinction among the cases of this disease, into such as are connected with a morbid state of the encephalon, and such as are *to all appearance* independent of any affection of the brain. The former, being infinitely the most common, will in the first instance require attention.

The most perfect form of cerebral palsy is *hemiplegia*; in which the affection extends over the whole of one side of the body, from the head to the foot. Sometimes it takes the form of *paraplegia*, or of palsy of the lower extremities; and, in some rarer instances, the affection is confined to the loss of function in a particular nerve. Each of these varieties of cerebral palsy will require separate investigation.

1. Hemiplegia, to which form of the disease the term *palsy* is in common language appropriated, has generally been considered as a minor degree of apoplexy. The attack of it is sometimes unexpected, but more commonly it is preceded for several days, or even weeks, by one or more of those symptoms formerly described as the forerunners of apoplexy; such as giddiness, drowsiness, numbness, dimness of sight, failure of the powers of mind, forgetfulness, transient delirium, or indistinctness of articulation. For the most part, the paralytic seizure is *sudden*,

but occasionally the approaches of the disease are made more slowly;—a finger, a hand, or an arm, the muscles of the tongue, of the mouth, or of the eyelids being first affected, and the paralytic state gradually extending to distant parts. It is a common observation, that hemiplegia is, in most instances, preceded by a genuine fit of apoplexy; but this opinion will hardly be borne out by facts, and it is, *à priori*, rendered improbable by a comparison of the frequency of palsy, with the rarity and acknowledged fatality of apoplexy. It is true that the patient, on occasion of the paralytic *stroke*, is often observed to labour under more or less of temporary coma, but the apoplectic paroxysm is hardly ever complete. It will be found in practice, that palsy is much more commonly the *precursor*, than the *consequence* of apoplexy.

It has often been remarked as a very singular circumstance, that in hemiplegia, as well as in other varieties of palsy, the power of sensation should remain perfect, while that of voluntary motion is wholly lost. This curious fact has perplexed physiologists in all ages, and various theories have been offered in explanation of it. In the present state of our knowledge, however, regarding the functions of the brain and nerves, they must be considered as altogether hypothetical. Cases, indeed, have undoubtedly occurred, wherein sensation was impaired as well as the power of voluntary motion; nor are there wanting instances of the total loss of sensation; or of the loss of sensation on one side, with that of

motion on the other. These latter, however, under the most favourable supposition, are so rare as hardly to merit notice. So far from there being *commonly* a loss of feeling attendant on palsy, it is not unusual to observe sensation morbidly increased. A disagreeable feeling of creeping, for instance, is occasionally complained of; rheumatic pains affect the limb; and blisters and phlegmons occasion the usual degree of inconvenience.

The temperature of the paralytic limb, as far as my own observation extends, is commonly preserved, though to the patient's feelings it may sometimes appear hotter, sometimes colder than natural. On this subject also, a considerable diversity of opinion has prevailed. Mr. Earle * has found reason to believe, that paralytic limbs are of a much lower temperature than natural; that they are incapable of supporting any fixed temperature; that they are peculiarly liable to partake of the heat of surrounding media; and cannot, without injury, sustain a degree of warmth, which to a healthy limb would not prove at all prejudicial.

I have commonly observed, that the pulse in the paralytic limb is weaker than that of the sound one. The mouth in hemiplegia is always distorted, and a peculiar expression of countenance is given by the torpor of one side of the face. The saliva, in many cases, dribbles away; and the tongue, when pro-

* Medico-Chirurgical Transactions, vol. vii. p. 179.

truded, is turned to one side. The speech is indistinct, and considerable difficulty is often experienced in swallowing liquids. After the disease has subsisted for a certain length of time, the muscles, apparently from want of use, shrink and waste, and become flaccid. Sometimes a degree of œdema supervenes, with a tendency to gangrene, especially on blistered surfaces.

In hemiplegia, the vital and natural functions are but little, if at all impaired. The bowels indeed are sometimes torpid; but there is no reason to believe, that the loss of nervous power extends, in common cases, to any of the internal organs. It is a curious circumstance too, that the senses are in general but little affected. The phænomena of hemiplegia, in fact, as Dr. Yelloly has remarked*, are principally confined to such parts as derive their nerves from the medulla oblongata and spinal marrow, and in this we may trace an important distinction between palsy and apoplexy.

The mental faculties almost always suffer. Sooner or later the intellect is weakened, the memory is more or less impaired, and even the passions are sensibly affected. A mind which was once vigorous, firm, or placid, becomes, after a paralytic attack, weak, timid, capricious, and fretful. To these general rules there may be found, however, I am well aware, many exceptions.

* Medico-Chirurgical Transactions, vol. vii. p. 214.

Instances are on record of *perfect* recovery from the attack of hemiplegia, but they are extremely rare. Sometimes, as I have already mentioned, the paralytic seizure is only the precursor to a complete fit of apoplexy, which commonly proves fatal in a few days. The more usual progress of the disease, however, is characterized by a slow but gradual and imperfect amendment, continuing for two or three months, until the patient, with some support, is able to walk about, dragging along the paralytic limb.

After remaining in this helpless condition for some years, he either dies of an attack of apoplexy, or of some new disease. In a severer form of the affection, the patient never makes any advances at all towards recovery. For many weeks or months he is confined to his bed, and at length gradually falls into a state of lethargy, or coma, in which he dies.

The opinions already delivered, regarding the proximate cause and general pathology of apoplexy, apply also, in a great degree, to hemiplegia, as will be rendered evident by a notice of the appearances usually found on dissection of those who either actually die of palsy, or who during life had experienced one or more paralytic attacks.

In those cases of paralysis which pass quickly into apoplexy, the common apoplectic appearances are met with ; in most instances, extravasations of blood ; but occasionally serous effusion into the ven-

tricles. In the more chronic forms of palsy, there is no appearance so common as discoloration, or some other diseased state of the corpora striata; but various other organic læsions of the brain and its membranes have been also observed. Of this kind are—encysted suppuration, induration of a part of the brain, flaccidity and softness of a portion of its substance, effusions of serum in various parts and in various quantities, tumours, and lastly clots of blood imbedded in the substance of the brain, or sometimes only cavities, in which it is presumed that such clots had formerly existed. The latter set of appearances have lately given rise to considerable discussion. It has been supposed that blood extravasated during the apoplectic or paralytic fit may in time become absorbed; and that in proportion to the degree of this absorption, will be the more or less perfect recovery of the patient. These conclusions, however, appear to have been hastily drawn, for they are not borne out by more recent observation.

Much importance has always been attached to the singular circumstance of the morbid appearances presented by the brain having their seat in the side opposite to that of the paralytic affection. The fact was noticed in the writings of Hippocrates, Galen, and Aretæus, and its correctness is sanctioned by many modern authorities, more especially by the accurate observations of Morgagni and Dr. Baillie. Although exceptions to it have unquestionably been met with (notwithstanding the positive assertions to the contrary of some late French pathologists), it

must yet be acknowledged as a phænomenon of very general occurrence; and from the earliest times attempts have been made to account for it. The notion of a decussation of nervous fibres was originally entertained by Aretæus, and applied by him in explanation of the fact. The subject has since been often brought under discussion, but by no one in so elaborate a manner as by Dr. Yelloly, in the first volume of the Medico-Chirurgical Transactions*. The principle of *decussation* seems to be generally admitted, but the difficulty consists in determining its seat; some placing it in the corpus callosum, others in the tuberculum annulare, the medulla oblongata, or the medulla spinalis. Pathologists have supported their respective opinions by much ingenious argument; but in the estimation of Dr. Yelloly, the preponderance is considerably in favour of that which makes the tuberculum annulare the seat of decussation.

It is not always that traces of morbid structure are discoverable in those who have suffered during life from hemiplegia; but this circumstance does not militate against the notion of an identity in the pathology of hemiplegia and apoplexy. Such an opinion, moreover, is corroborated by the identity of their predisposing and exciting causes; and, upon the whole, were it required to state in a few words the relation of these diseases to each other, it might be urged, that there *are* points of distinction between

* Page 185, et seq.

them, yet too obscure to be defined with accuracy ; and that, in common practice, they may be safely viewed as modifications of each other.

2. Paraplegia, or palsy of the lower half of the body, though far less frequent than hemiplegia, ranks next in importance to it. The loss of nervous power is here entirely confined to the pelvis and lower extremities. This affection sometimes arises, as will hereafter be mentioned, from local causes injuring the spinal marrow ; but it is as a disease depending upon some morbid state of the cerebral system, that I am now to consider it. Dr. Baillie is, I believe, the first who fully established the important pathological principle which I am now to illustrate, and to his paper I am indebted for the following outline of this variety of palsy*.

Cerebral paraplegia occurs chiefly in the middle or more advanced periods of life, and is more frequent in men than women. The approach of the disease is never sudden : at first there is only a sense of numbness, with a stiffness or awkwardness of motion in the lower limbs ; but by degrees the patient is unable to walk without support. As the disease advances, the urine passes off, at first in a feeble stream, and at length involuntarily. The bowels are costive, but from loss of power over the sphincters, the motions frequently pass unrestrained by the will. Patients in

* Vide Transactions of the College of Physicians of London, vol. vi. p. 16.

this complaint may live for a long time ; but at the end of some years they usually die with their constitutions entirely exhausted. In a few instances recovery takes place.

The connexion of these symptoms with disease of the brain has been in some cases proved by dissection ; and in others it has been rendered almost equally certain by the general symptoms of cerebral disease present at the same time. Dr. Baillie has seen paraplegia accompanied by giddiness, drowsiness, impaired vision, paralytic dropping of an eyelid, defect of the memory, loss of mental energy, and lastly, numbness and weakness of one or both of the upper extremities. These circumstances afford strong evidence that the cause of the disease exists within the cavity of the skull, and that it consists in some mode of pressure upon the brain.

3. There are a variety of cases in which the loss of nervous power is confined to a particular organ, or muscle, or set of muscles ; and yet from the manner in which the affection begins, from the symptoms which attend it, and the course which it afterwards runs, it is obvious to the pathologist that the source of the mischief must be sought for in the great centre of the nervous system. Innumerable degrees of paralytic affection may be observed in practice, from the torpor and weakness of a single finger, up to complete apoplexy, in which sense and motion perish throughout the whole body. To enumerate these different partial palsies would be unnecessary : it

is sufficient to say, that among the most frequent will be found amaurosis, or palsy of the optic nerve, palsy of the muscles of one side of the face, palsy affecting only the muscles of deglutition, and palsy of an arm, a hand, or a finger. It is wholly beyond our power to comprehend how it happens that a cause, operating upon the brain generally, should produce effects so partial and at such a distance from the actual seat of disease.

The difficulties which we have to encounter in any inquiry into the pathology of paralysis, are greatly increased when the investigation is extended to those cases of general and partial palsy which are, to all appearance, totally unconnected with any derangement of structure or function in the encephalon. That such cases do occur is unquestionable; and it must be left to future inquirers to determine in what manner these apparent inconsistencies are to be reconciled.

In the year 1820 I had an opportunity of seeing an instance of general palsy of the kind now alluded to, the history of which is fully detailed in the *London Medical Repository* *. The disease ran a very singular course, terminating, after the lapse of above eight months, in the complete recovery of health. During the whole of this long period there did not occur one symptom which could warrant me in looking to the brain as the source of the disorder.

* Vol. xvi. p. 265, October 1821.

The vital and natural functions were also undisturbed, nor was there any evidence of disease within the theca vertebralis. It is obvious, therefore, that this disease was, in its pathology, totally distinct from the ordinary forms of paralysis. A case very similar in its leading symptoms, but different in its termination, is recorded by Dr. Powell* in a paper containing many important pathological views of palsy. He brings forward this case among others, in support of the opinion, that paralytic affections, both partial and general, often originate in a peculiar condition of the *nerves alone*; that they are independent of any morbid affection of the blood-vessels of the head; and that they are produced in many instances by cold, and in some by sympathy with particular states of the stomach, or other distant local irritations.

There was a reasonable presumption that in the cases just quoted *cold* was the exciting cause, and the opinion is strengthened by a consideration of the frequency with which cold operates as the cause of paralytic affections of a more partial kind. The muscles of the face, of the arm, and of the foot, have often been found paralysed by exposure to cold, more especially when conjoined with moisture. Various instances of the kind might be quoted from the writings both of ancient and modern authors†. The union of palsy and rheumatism is a frequent occur-

* College Transactions, vol. v. p. 105.

† Consult Dr. Cooke's excellent work on "The History and Method of Cure of the various Species of Palsy," pp. 64 and 95.

rence in the lower ranks of life, and is therefore familiar to those who are in the habit of attending workhouses and parochial infirmaries.

There are many other causes of partial palsy, however, besides cold. Paraplegia depends, in a variety of cases, upon a diseased state of the spine, produced by mechanical injuries. The scrofulous incurvation of the spine to which infants and children are liable, is attended also in its progress by paraplegic symptoms. Partial palsy originates, in some instances, from long-continued exercise of particular muscles, or violence done to them. There is reason to believe, that occasionally it is connected with inflammation of the substance of the nerve, or of its covering. There is a fourth class of partial palsies, which apparently depend upon some irritation in the bowels.

By far the most common, however, of all the causes of partial palsy, is the poison of lead, which appears to exert some peculiarly noxious power over the nerves of the fore-arm and hand. Innumerable instances of this, which has commonly been called the saturnine palsy, are met with among plumbers, painters, workers in lead-mines, manufacturers of white lead, and others whose occupation exposes them to the influence of this metal*. It is certainly a curious circumstance, that some constitutions should be so much more easily affected by the poison

* For a full account of the peculiarities of the paralysis saturnina, I must refer to Clutterbuck, "On the Poison of Lead."

of lead than others. There are persons who, in a very short time, suffer severely from it in their general health, while others receive no injury, though exposed to it during a long series of years.

Palsy is a complaint which, from very early times, has been considered almost incurable; nor have the labours of modern pathologists succeeded in removing this opprobrium from medical science. It is sufficient to mark the numbers of paralytic persons in our streets, to form an idea of the inutility of medical practice in this disease.

The close analogy existing between the pathology of apoplexy and that of palsy, has led to the employment of blood-letting, both general and topical, in every variety of palsy, but more especially in hemiplegia; and very decided benefit has been occasionally derived from this practice. It is obviously best adapted for those cases which are attended with evidences of general plethora, or of strongly marked determination to the head. The evacuation of blood, by cupping, from the nape of the neck is *generally* to be preferred to bleeding from the arm; but it is quite impossible to lay down rules for the administration of this remedy, considering how much must always depend upon the particular constitution and habits of the patient.

All authors agree as to the benefit which may be reasonably expected from cathartic medicines. Jalap, scammony, and the more stimulating purgatives, are

to be preferred ; and their combination with calomel affords a powerful means of relieving tension and congestion within the head. Emetics have found many advocates upon the continent ; but the partial advantages derived from them do not appear to counterbalance the inconveniencies which they necessarily occasion.

Blisters to the nape of the neck have afforded considerable relief.

These observations apply to the treatment of hemiplegia in its early state. The system of treatment must of course be different, when the disease has subsisted for any length of time, and when all traces of affection of the head have ceased. Medicines of a stimulating quality have then been administered, with the view of rousing the torpor of the nervous power. Externally, physicians have had recourse to frictions, blisters, issues and setons, sinapisms, embrocations of various kinds, warm bathing, electricity, and galvanism. The waters of Bath and Buxton enjoy a considerable reputation for efficacy in paralytic cases. Internally, physicians have been in the habit of ordering tonic medicines of different kinds ; more especially aromatics, volatile salts, the heating gums, chalybeates, bitters, and plants containing an acrid essential oil, such as mustard and horseradish. The Formulæ, Nos. 43, 44, and 45, may be tried ; but the prospect of advantage from them is not great.

Besides these, medicines of a narcotic quality have been at different times recommended in the cure of palsy; more particularly the *nux vomica*, the *arnica montana*, and the *rhus toxicodendron*. That these drugs produce some very remarkable effects upon the nervous system, cannot be questioned. They will frequently occasion twitchings and convulsive motions, and a sense of tingling or pricking in the paralytic limbs; but these effects are, in many cases, rather painful than useful to the patient. Some instances are recorded of apparent benefit from them; but, upon the whole, they cannot be trusted to, and there is always some danger of their proving injurious to the general health.

The treatment of cerebral paraplegia is to be conducted on the same general principles. Dr. Baillie states, that though no plan of treatment has proved very successful, yet that he has employed with advantage cupping, blisters, a seton in the nape of the neck, purgative medicines, consisting of the compound extract of colocynth, jalap, and the neutral salts, and an alterative course of mercurial preparations. The same author further states, that in a few instances he has seen benefit from frictions to the lower limbs, continued for an hour twice a day, and in one case advantage was derived from electric sparks. He is disposed also to think favourably of tepid bathing both in fresh and sea water.

In the management of the different varieties of partial palsy, the physician must be guided by those

pathological views which were recently adverted to. Some do not appear to demand any remedial treatment, while others are as decidedly benefited by the judicious administration of medical and surgical aid. It would be unnecessary to go into any detail on this subject; but in consideration of the frequent occurrence of amaurosis and of saturnine palsy, as objects of attention to the physician, I shall make a few remarks on the treatment particularly applicable in these cases.

Very ample evidence has been brought forward by Dr. Vetch* and others, of the benefit to be derived from general blood-letting in amaurosis. Carried to the extent of producing syncope, it has proved, in many cases, the surest means of combating that congestive state of the deep-seated vessels of the eye, upon which the paralytic affection of the nerve appears mainly to depend. The necessity of this evacuation, however, is not to be judged of by the usual symptoms of ophthalmic inflammation. Its effects are to be assisted by the application of leeches, by purgatives and blisters. Mr. Travers, in the treatment of amaurosis, recommends in the first instance the employment of medicines calculated to regulate the functions of the digestive organs, and subsequently, such general tonics as the system can bear.

* Practical Treatise on Disorders of the Eyes, by John Vetch, M.D. London, 1820.

Mercury in the cure of saturnine palsy has found a warm advocate in Dr. Clutterbuck, who relates several cases in which its good effects were evident. From my own observations I should be inclined to form a very different estimate of its efficacy; and in its stead to recommend for general adoption the plan which I have known so successfully pursued in the hospital at Bath, viz. the application of blisters to the wrist; a warm bath twice in the week; warm pumping on the affected joint; occasional aperients, and the use of the battledore as advised by Dr. Pemberton. The drinking of the Bath waters may perhaps contribute to improve the general health; but I am persuaded that the only effectual system of treatment consists in the steady and long-continued employment of *local* stimuli.

CHAP. IV.

EPILEPSY.

Nosological Distinctions — Phænomena of the epileptic Paroxysm — Varieties — Natural Progress of the Disease — Prognosis — Predisposition — Dependence of Epilepsy on Derangement of the natural Functions — Stomach and Bowels — Uterus — On some primary morbid Condition of the Encephalon — Functional — Structural — Practice during the Paroxysm — Principles of Treatment during the Interval — Agency of antispasmodic Medicines.

MANY circumstances conspire to give peculiar interest to epilepsy; the great frequency of the disease, the class of persons among whom it chiefly prevails, the alarming character of its symptoms, the obscurity in which its pathology is involved, and the difficulties which, from the earliest times, have been experienced in the relief of it. No other disease has ever procured for itself so large a share of popular attention. In remote times it was universally attributed to the immediate agency of evil spirits, and viewed with a kind of reverential awe, which

obtained for it the name of *morbus sacer**. Among the Romans the forum broke up when an epileptic was seized with a paroxysm of his disease.

Although the characters of epilepsy are thus sufficiently distinct to have attracted in all ages the notice of the world, considerable difficulty has been found in contriving a definition of it which may include every form of the complaint; and not less perhaps, in establishing the precise nosological distinction between it and the other varieties of convulsive disease. This may chiefly be traced to the want of a proper understanding of the true meaning of *disease*, in opposition to the *symptoms* by which it is characterized. Convulsion is a symptom, and not a disease, though many nosologists have so termed it. Epilepsy, on the other hand, is strictly a disease, consisting of a succession of paroxysms of *convulsion*. To complete the definition, nosologists have added the clause, *with insensibility*, and by this they distinguish epilepsy from hysteria.

The *species* of epilepsy which have been described by authors, are mere technical expositions of its various exciting causes. Like many other affec-

* To the physician nothing certainly can be more instructive, than observing, that of the sick who were brought to our Saviour to be healed, the greater number were paralytics, and those who were possessed of "*unclean spirits*." While he learns from this how unchanged are the features of these diseases, he cannot, on the other hand, fail to appreciate, in all its force, the mighty miracle of their cure.

tions, it is both idiopathic and symptomatic; but the phænomena of the epileptic paroxysm are, in both cases, the same. I shall first describe the usual appearances, and then notice the most important of those varieties which have been recorded.

The epileptic fit for the most part occurs suddenly. The patient falls to the ground; and the disease has hence received the appropriate name of the *falling sickness*. When the complaint is fully established, it is usual for the patient to experience certain warnings of the approach of a fit, which, though lasting only a few seconds, enable him to make some preparations for it. The most frequent of these warning symptoms are headache, giddiness, dimness of sight, or flashes of light passing before the eyes, ringing in the ears, and coldness of the extremities. Some persons are apprised of the approach of the fit by the appearance of particular spectres; but the most common of all epileptic warnings, is that singular sensation of tremor, or coldness, or numbness, which has been called the *aura epileptica*. It begins at the extremity of a limb and gradually ascends to the head, when the paroxysm of coma and convulsion ensues.

During the fit the convulsive agitations of the body are violent. The eyes are fixed and reverted, and the pupils permanently contracted; the teeth gnash against each other; the tongue is thrust forward, and often severely bitten, and there is foaming at the mouth; the breathing is irregular and

laborious, and the pulse for the most part small and contracted. Complete insensibility prevails. The fit varies in duration from a few minutes to a quarter, or half an hour. In some cases it has lasted even longer. On its cessation the patient remains for some time motionless, insensible, and apparently in a profound sleep. From this he recovers by degrees, but without any recollection of the circumstances of the fit. It leaves him weak and exhausted, and for the rest of the day he generally complains of a degree of stupor and sense of oppression in the head. In many cases this has amounted to actual *delirium*, continuing for two or three days.

The periods of recurrence of the fits are too various to admit of being stated with any degree of accuracy. When the disease first develops itself, the intervals are long, perhaps two or three months. As it becomes more firmly rooted in the system, the fits recur with a corresponding frequency, until at length the patient hardly passes a day without one. It is important, however, to bear in mind, that genuine epilepsy never occurs oftener than this; and therefore when a person has more than one fit in the day, we may reasonably conclude that the disease is of an *hysterical* nature.

Epileptic fits occur at all hours; but much more commonly during the night than in the day; sometimes on first going to sleep; but more usually, as far as my own observations extend, on waking in the morning. It is reasonable to conclude that

there is some peculiarity in the state of the brain during sleep, which is highly favourable to the development of the epileptic paroxysm.

The varieties in the phænomena of the epileptic fit are very interesting; and they have induced Dr. Prichard (from whose valuable work I have derived great assistance in the present and succeeding chapters) to found upon them a threefold division of the disease. The first, or common form, is that which I have just described, characterized by insensibility, and general convulsions, or *struggling* of the whole body. The second is the *tetanoid* epilepsy, distinguished by the loss of sense and consciousness, with tonic spasm or *rigidity* of the muscles. There is the same *suddenness* of seizure in this as in the former species; and though the attacks are very different in their aspect, they are manifestly allied in their nature. The third form of epilepsy is marked by fits of insensibility, with perfect *relaxation* of the muscular system. Dr. Prichard distinguishes this by the term *epileptic leipothymia**. It bears a close resemblance to the apoplectic state; but its recurrence in paroxysms, and the whole tenour of the disease prove it to be connected pathologically with epilepsy. To these may be added a fourth and still more singular variety, to which authors have given the name of *catalepsy*. The reality of such a state of disease has frequently been called in question, but without suf-

* Treatise on the Diseases of the nervous System, by Dr. Prichard. London, 1822. Vol. i. p. 87.

ficient reason. One instance of it has fallen under my own observation. The affection consists of paroxysms of reverie, in which the patient remains unconscious of external impressions, and incapable of voluntary motion, though retaining the position in which he was first seized. The fit seldom lasts more than a few minutes, and leaves no traces of itself in the memory. The disease has in several instances passed into common epilepsy.

It has been noticed by authors, that some degree of consciousness is occasionally preserved in the genuine epileptic paroxysm; but such an occurrence is very rare, and seldom permanent, proving only a prelude to the total abolition of sense. In a few cases the recovery from the fit has been as sudden as the seizure; nor are the succeeding headache and stupor observed invariably.

Such are the more common modifications of the epileptic paroxysm. In whichever way the disease manifests itself, it goes on to produce other, and more serious injury to the constitution. In the first place, the mental faculties become gradually and permanently more and more impaired; the memory fails, and a state of mind closely verging to idiotism is at length brought on. In almost all epileptics a vacant expression of countenance is observable, which once seen cannot easily be forgotten. Yet here, too, we may incidentally mark the endless variety in the phænomena of disease. It has happened that a person, subject in youth to epilepsy, has risen in ma-

turer years to the highest honours of a state, and been celebrated for political and literary talents.

Epilepsy which is once thoroughly rooted in the habit, will generally be found to bring on, sooner or later, some other form of encephalic disease,—hydrocephalus, mania, apoplexy, or palsy. The complication of epilepsy with mania is at once the most frequent and the most formidable. Of one of these, in most instances, the epileptic patient dies; but it is not to be overlooked, that epilepsy sometimes terminates, in the third place, fatally and suddenly, without inducing any secondary affection. This, though seldom witnessed among adults, is not uncommon in the epilepsy of children: and assuredly it cannot be matter of surprise;—it can only lead us to reflect, how wonderful must be the structure of that delicate system, which can resist, in ordinary cases, the repeated attacks of so dreadful a disease, and how little pathology can assist us in unravelling such a mystery.

On the morbid appearances observed in those who die of epilepsy, I have nothing to state of any importance. A turgid condition of vessels, both in the membranes and substance of the brain, has been noticed in some cases, with or without effusion of serum. Tumours, exostoses, and abscesses, have been discovered in others; but in none has dissection thrown any light on the peculiarities which distinguish the convulsive from the other varieties of encephalic disease.

In offering a few remarks on the predisposition to epilepsy, I have first to notice that it is obviously an *hereditary* disease in many instances. In others, the parents and relatives of the patient may not, it is true, suffer from actual epilepsy, but they will often be found affected by other maladies of the same class, such as palsy, connate idiotism, or mania. The intimate connexion subsisting among the different forms of nervous disease will enable us still to trace, in these circumstances, the principle of hereditary predisposition.

Epilepsy undoubtedly prevails, for the most part, in that habit or temperament of body called by some nervous; to which Dr. Cullen applied the term, *mobility of constitution*, and which entered so deeply into his speculations on the pathology of this disease. It is that state where impressions, both on the mind and body, produce more than their usually corresponding effects,—in which hope elates, and fear depresses, and wine irritates more than could reasonably be anticipated. To this circumstance alone are we warranted in attributing the well-established fact, that epilepsy is mainly the disease of early life. It was a maxim of Hippocrates, that epilepsy never *originates* after the twentieth year; and though exceptions to this rule have doubtless occurred, it is yet a remark which amply proves the extent and accuracy of his researches.

Epilepsy is generally stated to occur in nearly the same degree of frequency in both sexes. My own

observations would lead me to believe that it is considerably more prevalent among females than males ; and the fact, if correct, may be attributed partly to the greater *mobility* of habit in the female sex, and partly to that which is next to engage our attention,—the peculiar character of the *exciting causes* of the disease. These constitute, in fact, the most interesting points in the pathology of epilepsy, and they well merit a regular and detailed investigation.

I may begin by noticing the connexion of epilepsy with a deranged state of the natural functions, constituting the *epilepsia occasionalis* of Dr. Cullen ; and then proceed to show how it depends, in other cases, upon some primary morbid condition of the encephalon. This latter variety of the disease Dr. Cullen has designated by the title of *epilepsia cereb-
bralis*.

1. The symptomatic or *occasional* epilepsy is of two kinds ;—the enteric, or that which is connected with disturbance of function in some portion of the alimentary canal ; and the hysteric, or that which has its origin in disturbed functions of the uterus. Speaking generally, we may say, that the first is peculiar to children under the age of fourteen ; and the second to women between the ages of fourteen and twenty.

The first source of that irritation in the alimentary tract which leads to epilepsy, is painful dentition. It is a fruitful cause of the encephalic diseases of children, and of none more commonly than

of epileptic fits. The second is acidity in the stomach, its distention by wind, or the mere detention in it of crude and undigested aliment. In infants of high natural irritability of frame, these disordered conditions of the stomach frequently lead to paroxysms of convulsion; and in many cases they recur, and otherwise exhibit all the characters of perfect epilepsy.

At a somewhat more advanced period of life, there is no kind of irritation which so commonly proves the source of epileptic fits, as the presence of *worms* in the intestinal canal; but almost any disorder of the bowels will, in certain habits and states of body, bring on a tendency to convulsion. The phænomena of cholera morbus will at once suggest themselves as an illustration of this pathological principle. The prognosis, in all the forms of enteric epilepsy, is naturally more favourable than in any other variety of the disease; because the source of irritation is both more obvious, and more under our control.

The hysteric epilepsy is at least equally frequent, and unfortunately a much more formidable kind of disorder. It is a melancholy reflection that it prevails extensively among the most delicate of the sex, at the most interesting period of their lives; often resisting the most active and judicious treatment, and degenerating into that permanent and almost incurable form of cerebral epilepsy which we are next to notice. Hysteric epilepsy commonly affects

females about the commencement of the catamenial epoch, or shortly afterwards, when the flow is scanty and difficult. Occasionally it takes place at a later period of life, in accidental obstructions of the menses. It chiefly prevails among those of sanguine temperament, with full development and vigorous action of the circulating system, and a delicate irritable constitution. There is nothing peculiar in the character of the fits of hysteric epilepsy, except that their recurrence frequently corresponds with the regular catamenial periods.

2. Epilepsy, as I have already hinted, is in some instances dependent upon a *primary* morbid condition of the encephalon, and totally *independent* of disturbed function of the abdominal viscera. Like the preceding variety, cerebral epilepsy is of two kinds; the one connected with *functional*, the other with *structural* disease of the brain and nervous system.

The obscurity in which the whole subject of the functions of the brain and nerves is involved, makes it impossible to speak with any precision on that difficult point in the pathology of epilepsy at which we are now arrived; but a variety of arguments might be adduced to show, that there exists primary functional disturbance of the brain leading to the epileptic paroxysm. The hereditary predisposition to the disease, the absence of all appearances after death excepting such as are common to other forms of chronic disease of the encephalon, and the recur-

rence of the fits at irregular periods, and particularly at night, are strong confirmations of this doctrine; but to these we may add the peculiar character of many of the immediate *exciting* causes of the fit. Of this kind are violent mental emotion, imitation, and the operation of certain poisonous matters both of the narcotic and morbid kind. Arsenic and the muriate of barytes have been strongly suspected of inducing epilepsy. The first effect of the poison of small-pox is frequently in children an epileptic paroxysm.

It is impossible to overlook the fact, that in a very large proportion of the cases of cerebral or idiopathic epilepsy, and in many of those which are manifestly connected with disturbed function of the bowels and uterus, there is well-marked preternatural fulness in some part of the vascular system of the brain. This is a great and important feature in the pathology of epilepsy; and if I have reserved all mention of it to this time, it is because I feared that an earlier notice of it might divert the mind of the student from those other views of the complaint which, though obscure, and therefore less inviting, are yet equally necessary to a thorough understanding of it.

The grounds on which we form the opinion regarding the connexion of epilepsy with a state of congestion or over-distention of the cerebral blood-vessels, may be thus briefly enumerated. Epilepsy occurs in persons of full habit of body, and indolent

mode of life: the fit is frequently preceded by headache, flushings of the face, and throbbing of the carotid and temporal arteries: it is brought on in many cases by great muscular exertion, as in parturition, by stooping, intoxication, heated rooms, and above all by violent fits of coughing, such as occur in severe hooping cough: the hysteric form of the disease is only one of those many consequences of obstructed menstruation, of which the prevailing character is irregular determination of blood: the appearances on dissection, when observed, are those of sanguine accumulation in the brain: and lastly, we may bring forward the well-attested good effects which have followed that depleting system of treatment which I am about to recommend.

While I thus express myself on the subject of epilepsy as connected with turgescence of vessels, I am not insensible to the fact that paroxysms of *convulsion* are occasionally connected with a state of cerebral circulation, directly the reverse; as when we see them following large bleedings at the arm, double amputations, or excessive purging. Dr. Cullen, indeed, appears to have overstrained his favourite theory of epilepsy from *collapse*, but it must not be altogether excluded from our reasonings.

The last point which requires consideration previous to entering on the subject of treatment, is the connexion of epilepsy with chronic disorganizations of some one of the structures within the cranium. Those which authors have most usually noticed as

producing epilepsy, are spiculæ of bone, detached by some injury from the internal table of the skull, ossifications of the falx, tumours of various kinds, attached either to the bones, membranes, or parenchymatous substance of the brain, and lastly, foreign bodies lodged there. Numerous cases are to be found on record, of epilepsy from these and similar causes; but instead of pressing them on the notice of the student, I would rather wish him to understand how rare they are in comparison of those which are simply the results of *morbid action*, in many of which we may reasonably hope, by judicious measures and steady perseverance, to produce an alleviation, and even in a few, the permanent cure of the disease.

After what I observed in the outset of this chapter, it is unnecessary to state formally the difficulties which the physician has always to encounter in the management of this obstinate disorder. In many cases they are such as no skill can overcome. In others, however, a regular system of treatment founded on those pathological views which I have attempted to explain, is productive of decided benefit, while some, which to the pathologist would have appeared hopeless, have yielded to a practice wholly *empirical*. These considerations should encourage us in our attempts to cure the disease; and the following may be viewed as the most important of the principles on which a rational treatment of epilepsy is to be conducted.

During the fit no remedial measures of any importance are either practicable or necessary. Our

efforts are to be reserved for the intervals of the fits, and our aim should be to prevent their recurrence. In effecting this, the following are to be the chief objects of attention:

1. To remove all sources of irritation.
2. To moderate the afflux of blood upon the brain.
3. To alter that morbid condition of the nervous system, on which convulsion depends.

To one or other of these principles may be traced the good effects of all the medicines and plans of treatment which have at different times proved efficacious in the cure of epilepsy. They are far from being incompatible with each other. On the contrary, it is often necessary to combine them all in the management of an individual case.

1. Having already described the different kinds of irritation in the body which occasion an epileptic fit, I have only now to state, that in the epilepsies of infants and children much may be done by free scarification of the gums, by the administration of an emetic, by occasional smart doses of purgative medicines, by the more liberal use of mild aperients and absorbents, and by strict attention to diet and regimen. Where the concomitant symptoms afford evidence of the presence of worms, anthelmintics are of course to be exhibited, more especially the oil of turpentine in a full dose. This medicine, independ-

ent of its vermifuge property, appears to exert, in moderate doses, a peculiar power of allaying that irritable state of the nervous system, with which the convulsive paroxysm is so intimately connected. It is stated also by Dr. Prichard, that it quickly and very materially changes the state of the intestinal secretions, producing regular and moderate evacuations. It is best administered according to the Formula No. 46.

When the irritation is seated in the uterine system, as manifested by the concurrent symptoms, scanty and laborious menstruation, and the peculiar periods at which the fits recur, our measures must in part be directed to restore the natural determination to the uterus. For this purpose recourse may be had to the warm bath, or semicupium, stimulating enemata, relaxing medicines, as the antimonial diaphoretics, and the different kinds of *emmenagogues*. Regular exercise, occasional purgatives, and in some instances an issue or seton, have also afforded very efficient aid in the treatment of the hysteric forms of the disease.

2. The second of those great principles by which the treatment of epilepsy is to be guided, is the obviating general plethora, and the taking off that peculiar determination of blood to the vessels of the head, which has been adduced as one of the most important features in the pathology of the disease.

Such a principle is equally applicable to the sympathetic, as to the primary, or cerebral, varieties

of epilepsy. Where the disease is still recent, where it occurs to young persons, and in robust habits, and more especially where, in the intervals of the fits, the patient complains of headache, giddiness, stupor, or any other mark of permanent fulness in the blood-vessels of the brain, bleeding from the arm is not to be omitted. It may even be necessary to repeat it frequently, before the tendency to accumulation of blood about the head can be thoroughly subdued.

Keeping the same important object in view, the student will easily understand how to aid the effects of blood-letting, by a mild and unirritating diet, early hours of rising and going to bed, regular exercise, abstinence from all fermented liquors, and cold washing of the head and neck. Under particular circumstances, he will perceive the necessity of substituting for it cupping between the shoulders, leeches to the temples, blisters to the nape of the neck, and the steady use of purgative medicines. It is hardly necessary to add, that rules can never be framed for the guidance of the student in the mere *detail* of treatment. This more particularly applies to a disease which often lasts for years, and occurs under an infinite variety of aspects. The judgment of the practitioner is here alone to be trusted to.

3. The last of those principles which regulate the physician in the administration of remedies for the cure of epilepsy, is the altering that peculiar condition of the brain and nervous system with which the state of convulsion is associated. Experience has

shown, that medicines of the *narcotic* kind possess a considerable power over it. Many of them have accordingly been employed in epilepsy, and with occasional advantage; more particularly camphor, opium, hyoscyamus, and stramonium.

Further; there are grounds for believing that the morbid irritability of the brain and nerves on which spasm depends, is often connected with general constitutional *weakness*. Hence it is that many of the most powerful of the *antispasmodic* medicines are in fact *tonic*. Of these I may specify, as having obtained considerable reputation in the treatment of epilepsy, bark, steel, valerian, and misletoe.

But it must be confessed, thirdly, that we are too often unable to form any idea of the precise nature of that morbid state of the nervous system present in convulsive diseases. This feature in the pathology of epilepsy is important with a view to practice. It shows that some of the medicines which have acquired a character for the cure of this disease, may have deserved it, although the mode of their operation be as little known to us, as the state of brain on which the epileptic paroxysm depends. It is impossible, for instance, to overlook the numerous cases which are on record of the *permanent* cure of epilepsy by the *argentum nitratum*; and though we were to allow that a large proportion of these are inaccurately reported, still we must acknowledge the *alleviation* afforded by the remedy; and this appears inexplicable on any other principle than that to which I

have now adverted. Arsenic, and the oxyd of zinc, have, in the hands of other practitioners, been found no less successful ; and upon the whole, we are compelled to believe, that these and similar drugs may really be entitled to that credit which a too scrupulous pathology has often denied them.

CHAP. V.

MANIA.

*Controversy regarding the Nature of maniacal Aberration
——Manner in which Mania originates——Progress of
the Disease——Varieties in the maniacal Character——
Prognosis——Morbid Appearances——Predisposition to
Mania——Exciting Causes, physical and mental——
Pathology of Mania——Management of the Insane——
moral and medical.*

IT is impossible for me to enter on the discussion of this subject without some expression of the reluctance with which I engage in it. Conscious, as I am, that it ill becomes a physician to cherish in the exercise of his duties the refined and delicate feelings of his moral nature, it would yet be affectation in him to overlook the very peculiar character of this branch of his profession,—to reason concerning mental, with the same indifference as on bodily derangements; or, in investigating the nature of mania, to forget the melancholy spectacle of the maniac. But there are other considerations which make me hesitate in entering upon the present inquiry,—the extreme obscurity of the subject, arising from our ignorance of the mode in which the opera-

tions of mind and body are connected ;—the remarkable differences observable in the opinions of medical authors concerning mania ;—and the limited extent of my own experience in the disease. On the other hand, it is no small consolation to reflect, that the pathology of mania has little in it which bears upon treatment ; and if the student should rise from the perusal of this chapter imperfectly informed of the theory of the disease, he will yet not be the less qualified to appreciate its practical suggestions.

A great deal of metaphysical learning has been displayed in determining the precise nature of maniacal aberration,—in other words, in developing the *theory of diseased ideas*. The object has been to frame from this, some *definition* of mania which may apply to all cases of the disease ; and to afford to the medical practitioner a certain criterion, by which to determine when a man is actually deranged, and to distinguish between insanity, and mere singularity of manner, or waywardness of temper.

The difficulty of effecting this is greater than might at first sight be apprehended. One class of nosologists define mania to consist in some error of the judging, or reasoning faculty. Mr. Locke characterizes madness as a disordered state of the association of ideas. Dr. Cullen, who supports this theory, says, that false judgments of the relations of things constitute mania. This view of the subject, however, is in opposition to a principle generally

admitted, that madmen reason correctly from erroneous premises ; and moreover it draws no sufficient line of distinction between the insane, and those who are merely foolish, or capricious.

Dissatisfied with this definition, Dr. Cullen subsequently stated it as his opinion, that the diseased judgments of the insane were such as produced *disproportionate emotions*. It is questionable how far this addition has improved our just notions of the disease. The emotions of a lunatic are indeed often vehement and forcibly expressed, but they are probably in due proportion to the impressions from which they take their rise.

Another class of pathologists, therefore, in attempting to establish the nature of madness, exclude all reference to the state of the reasoning faculty, as well as all notion of a primary derangement of the emotions or passions, and consider mania as consisting in *diseased perceptions* ; the mistaking one man for another, a chair for a throne, a walking-stick for a sceptre. That such false perceptions do occur among maniacs there can be no dispute, but it may reasonably be doubted whether they are the *essential* circumstances of madness. Many insane persons have the power of perception in a very complete degree ; and false or *mistaken* perceptions are among the ordinary occurrences of common life.

Dr. Prichard and others take a somewhat different view of the subject,—maintaining that the habit

which characterizes the lunatic, is that of confounding the results of imagination and memory; and mistaking the ideas of reverie for the impressions of attentive and active reflection. This is doubtless a correct and scientific explanation of a very large proportion of maniacal aberrations; but whether it includes them all, is a point on which pathologists continue to differ.

From the diversity of views which have thus been taken of the precise condition of the mind which constitutes insanity, we may, I imagine, deduce some very important conclusions: 1st, That all the faculties of the mind are capable of being affected in the maniacal state, though not always equally, or at one and the same time: 2dly, That it is hardly possible to express in words the nice distinctions that mark the boundaries of reason and insanity, or to specify the delicate gradations by which weakness of intellect, depression of spirits, violence of temper, and eccentricity of manner, degenerate into actual disease: 3dly, That in determining the question of sanity or lunacy, the common sense of mankind must ultimately be relied on; and that its decision can receive little or no assistance from metaphysical speculations.

Passing from these abstruse points, I proceed to give a brief sketch of the origin and progress of the disease. The manner in which it makes its approach is considerably diversified. In some instances the attack is sudden and violent, and perfectly unex-

pected; but in others, and probably in a much larger proportion of cases, the advances of the complaint are *gradual*. A certain oddity of manner has been manifest in the individual, perhaps for years; he has exhibited very high or unusually low spirits, been fretful and irascible on slight occasions, distrustful of his friends, easily intoxicated, and strongly affected by every emotion or passion of the mind. The increase of these has prepared the friends of the patient for the complete development of the maniacal symptoms.

In the onset of the disease there is generally considerable disorder of the whole system, much febrile excitement, loss of appetite, a costive state of the bowels, excessive restlessness. There are present, also, very decided evidences of unusual determination of blood to the head;—flushing of the face, redness of the conjunctiva, contracted pupils, and headache. The ideas of the patient are often more incoherent at the commencement of madness than at a more advanced period. As the general excitement of the body lessens, they acquire a greater degree of consistency, occurring in trains more evidently connected, though still retaining the true maniacal character. The patient will now answer questions, but his replies are vague and unmeaning.

In this state the maniac remains for a considerable time, the disease very seldom proving immediately fatal. He relapses perhaps occasionally into the prior degree of incoherence, or exhibits the

cheering prospect of a *lucid interval*. By degrees his ideas become more settled, until either the morbid impressions altogether disappear, or they remain so indelibly fixed, that he sinks into the condition of a confirmed and incurable lunatic.

In the further progress of the disease, it becomes frequently complicated with epilepsy or palsy. After the lapse of some years, the patient dies, and for the most part in a comatose state*.

There is a proportion of the insane who can only be restored to a *certain degree* of sanity. While kept quiet and unexposed to any source of irritation, they enjoy a considerable share of rationality and tranquillity. Retaining, however, a morbid susceptibility of all the causes which produce the disease, they are incapable of again mixing with the world without the risk of the total abolition of reason.

From the earliest periods attention was directed, both by the profession and by mankind generally, to the varieties in the maniacal character; and much importance has always been attached to them. Maniacal aberration exhibits itself under the three great forms of the furious, the gloomy, and the idiotic, which latter may be either adventitious or congenite. These distinctions correspond with the

* This outline of the history of mania is abstracted from Dr. Prichard's excellent work on the "Diseases of the nervous System," p. 113.

mania, melancholia, amentia, and fatuitas of nosologists. Although a *popular* subdivision of the complaint, it is certainly superior to that which the old pathological writers chiefly dwelt upon. By them the *extent* of maniacal aberration was assumed as the distinctive character of the species; and the term *melancholia* was made to bear a reference, not to the concomitant dejection and despondency, but to the *limitation* of the diseased condition of mind to a few objects or trains of ideas. This, however, appears to be a matter of trifling importance, whether in relation to pathology, prognosis, or practice, and it is therefore in a great measure disregarded by modern authors.

A detail of the most striking peculiarities in each of these three principal forms of insanity would afford ample scope for the display of eloquence, and might prove interesting to the man of feeling, and perhaps useful to the cultivator of intellectual philosophy. To the student of physic, however, it would be of little value, and this consideration deters me from attempting even a faint sketch of it. To him the most interesting subject which the investigation of mania presents is that of *prognosis*, which within the last few years has been prosecuted with uncommon zeal, and has led to results which neither the physician nor the philanthropist can contemplate without much gratification.

It has been satisfactorily proved, in the first place, that mania does admit of cure; and provided the

disease be brought under treatment at an early period, in a very large proportion of cases. It has been shown, secondly, that a mild and humane system of management is that under which the greatest number of cures has been effected, and that the ultimate good of the lunatic can never be brought forward to cloak the carelessness or ill temper of the attendants. But it is sufficient to look at the reports of any of the great receptacles for lunatics in this country*, to be sensible that mania, though curable, is not so in the same degree as many other chronic diseases.

In estimating the probability of *permanent* recovery many minute circumstances must be taken into consideration, but we are never to lose sight of the strong tendency which this disease shows to re-

* Report, laid before a Committee of the House of Commons, May 15, 1815, of the Admissions and Discharges into St. Luke's Hospital, during the Years 1811, 12, and 13.

Year.	Admitted.			Discharged cured.		Discharged uncured.		Having fits, and being too weak in health to take medicines for their lunacy.	Died.
	Males.	Females.	Total.	Males.	Females.	Males.	Females.		
1811	137	157	294	49	75	49	58	48	33
1812	136	158	294	49	72	53	56	29	29
1813	126	156	282	39	74	54	59	33	24
Average of deaths among 100 incurable lunatics, from 3 to 5 per year.									
Applications for admission on the incurable list, about 700.									

lapse, and to rivet itself in the constitution by frequent recurrence. The particular prognosis, or those minuter shades of distinction which give us more or less hopes in individual cases, may be comprised under the following heads.—Insane persons recover in proportion to their youth. The chance of recovery diminishes with the length of time that the disorder has continued. Patients who are in a furious state recover in a larger proportion than those who are depressed or fatuous. Mania connected with palsy or epilepsy is quite hopeless. Mania from physical causes is more likely to be permanently cured than when it arises from mental or moral causes. Puerperal mania is that species of the disease from which *perfect* recovery has taken place in the largest proportion of cases. Insanity is more or less susceptible of cure according as it arises from causes purely *accidental*, or is connected with a greater or less strength of family predisposition.

Much discussion has arisen respecting the morbid appearances observable in those who die maniacal. It has been contended by some, that the brain exhibits certain distinctive characters in all, or almost all cases of mania; and a peculiar *hardness* of the substance of the brain has usually been regarded as the *common* phænomenon. By others, this is not only denied, but it is actually maintained, on the authority of numerous and accurate dissections, that no alteration whatever from the healthy structure is discernible in the heads of the insane. The truth will be found to lie between these extremes.

Morbid appearances are indeed observed, but they are in no wise different from such as present themselves in many other forms of encephalic disease, or even in common fevers,—serous effusion, for instance, thickening of the membranes, turgescence of vessels. The notion of the maniacal state being intimately connected with preternatural hardness of the brain, is now abandoned.

In entering on the consideration of the *causes* of mania, my attention must first be directed to the important influence of hereditary predisposition. It is the most strongly marked and melancholy proof which we have of the reality of such a predisposing cause of disease. Struck by its extent and force, some pathologists have even questioned the possibility of mania existing without it, and have alleged, that no combination of circumstances, however powerful, can, *per se*, bring on the maniacal state. The phænomena of febrile delirium, however, are strongly in favour of the presumption, that mania is sometimes *acquired*. The instances which appear most unequivocally to prove such a principle in pathology occur in the case of puerperal insanity; and doubtless to this circumstance is mainly to be attributed the greater proportion of recoveries which distinguish this class of maniacal patients. The predisposition is of course the stronger, as it occurs on the side of one, or of both parents.

The only other circumstance which can be considered to give a predisposition to insanity, is the

advanced period of life. As a disease of youth, mania is hardly known. Seldom is it observed before the twentieth year, and it increases in frequency as life advances. The greater number of maniacal patients have their first attack between the ages of thirty and forty. The female sex has been considered by some as more especially prone to mania, but the disproportion is not very great, and if puerperal insanity is kept out of view, hardly discernible.

The circumstances that more immediately induce the maniacal paroxysm are often obscure, the most accurate inquiries exposing nothing that could have contributed to the event; but at other times it is observed to follow certain physical conditions of the body, and affections of the mind, which it may be useful to investigate.

Injuries of the head have sometimes brought on mania. A constant habit of intoxication is that which chiefly operates as the cause of insanity among the lower classes in this country. Such a result cannot surprise us when we reflect what intoxication is, how nearly it resembles mania, and how seriously the frequent indulgence of it must injure the vessels of the brain.

I have already alluded to the numerous instances which occur of insanity succeeding parturition. Women of *sanguine temperament* are chiefly observed to suffer in this manner, but it is not *peculiar* to such

habits ; and altogether there is considerable difficulty in accounting satisfactorily for the phænomenon. Maniacal affections are connected also in other modes with the uterine functions. Irregularity of menstruation, which in many young women induces symptoms of hysteria, becomes in others the prelude to a maniacal attack.

Authors are in the habit of illustrating this portion of the pathology of mania by reference to the cases which are recorded of its origin from *metastasis*. I am inclined to think, however, that more importance has been attached to this, than a strict investigation of the subject warrants. I pass on therefore to notice the emotions of mind, the uncontrolled indulgence of which has brought on insanity, and among these the most common are superstitious dread, religious fanaticism, intense grief especially where arising from domestic calamity, closely allied to which is the despondency of a hopeless passion. Poets are fond of representing these as the sources of mental derangement, and there is much less of fiction here than in other exercises of their genius. Lastly, mania has often been traced (particularly in commercial countries) to the constant anxiety of mind connected with an extensive trade and hazardous speculations. With a view to practice, it is very important to bear in mind that in maniacal cases most obviously arising from these and similar violent emotions and passions, there will often be found considerable disorder of the natural functions. Whether this is to be regarded in the light of cause or effect

may be a matter of dispute, but it is generally acknowledged that such cases admit of relief by remedies acting through the medium of the stomach.

Of the actual state of the brain in mania we have no certain knowledge. It is reasonable to presume that in some cases there is *congestion*, or perhaps a peculiar kind or modification of *inflammation* going on there. Many of the occasional causes of the disease, some of its preceding and concomitant symptoms, its connexion with other diseases, the mode by which it proves fatal, and occasionally the appearances found on dissection, correspond perfectly with that notion. We are led to the same opinion by considering the recorded good effects in mania of such measures as are commonly resorted to in encephalic inflammation, compared with the inefficacy of all others.

There are a variety of facts, however, connected with the history of mania quite inexplicable on such a principle: as for instance an hereditary predisposition to the disease, and its recurrence at irregular periods from slight and inadequate causes. From these it is to be inferred that mania is often produced by a morbid condition of the brain, unappreciable by the anatomist, and altogether different from those visible, tangible, organic affections which are the consequences of disturbed circulation within the cranium. Judging from the well-known fact that mania seldom appears in early life, often not until a good old age, that it becomes more obstinate as

the patient grows older, and that a modification of mental derangement, imbecility, often comes on in extreme old age, we must infer that the changes which the structure of the brain undergoes in the progress of life tend to increase that peculiar condition of it with which maniacal aberration is connected.

The treatment of mania is usually discussed under the two heads of moral and medical, and both have been much improved of late years; the former being more thoroughly investigated, and raised in importance; the other by being simplified and regulated by more accurate principles. I begin with the consideration of the *moral management* of the insane, it being now unreservedly admitted that on it depends mainly the successful issue of the case. Under this head are included, in public institutions the classification of patients, in all situations the conduct and tone of the medical practitioner and of the attendants towards the patient, the employment of restraint and coercive measures, the question of estrangement from friends, and of solitary confinement, the establishment of a system of regularity in all the actions of the lunatic, the occupation of his mind, religious instruction, amusements, manual employments, exercise, the regulation of diet and regimen, and the change of scene and association.

A few cursory observations on the principal topics here suggested will be sufficient to point out the spirit and scope of that system of moral

management which is now generally adopted in this country. Firmness on the part of the attendants sufficient to ensure obedience is found not incompatible with those conciliatory manners which so commonly win the good will of the patient, and rouse him from the sullen humours in which he is prone to indulge. The employment of severe restraint is hardly ever resorted to in the best regulated modern mad-houses. It creates a degree of irritation of mind which impedes advancement, and is at variance with that soothing and encouraging plan so necessary to ultimate success. In many cases nothing contributes so essentially to the cure, as withdrawing the mind as much as possible from former scenes and settled associations; and to effect this, the total exclusion of friends, and a complete change of scene and habits, are often found to be measures of indispensable necessity.

Amusements of various kinds that engage attention and promote exercise in the open air, without rousing the passions or producing fatigue, should in every way be encouraged. The diet should be simple, and at the same time nourishing, such as may support the system, without *heating* it. Regular hours of meals, exercise, and sleep, should be strictly enforced.

The medical treatment of insanity was at one time conducted in the most indiscriminate manner, having no reference to the peculiar habits of the patient, the immediate exciting causes of the disease,

or the character of the concomitant symptoms. Such an opprobrium is no longer chargeable against those who have the professional care of lunatics. It is now well understood, that though medicines are of comparatively little service in the relief of mania, yet when necessary, their administration is to be suited to the complexion of each case, and regulated by the ordinary principles of pathology. The following suggestions may assist the student in determining the plan of medical treatment best adapted to the particular state and stage of mania, in which his assistance may be required.

1. The medical treatment of insanity can alone be entered upon with a reasonable prospect of advantage at an early period of the disease.

2. It cannot legitimately be employed with any other object than that of relieving the constitutional disturbances with which maniacal aberration is occasionally complicated. When these have ceased, our hopes of success must rest in time, the efforts of nature, and moral management.

3. When insanity first develops itself in a young and plethoric person, it is not uncommonly accompanied with the ordinary marks of phrenitic inflammation; and here blood-letting is often resorted to with very beneficial effects. I am well aware, however, that among those whose attention is exclusively directed to maniacal disorders, a notion prevails, that blood-letting rivets the disease, and that the great

object of the practitioner, in all its stages, should be to support the patient's strength. Acknowledging the general correctness of this rule, there are still considerations of great weight to which at times it must necessarily yield. The nature of the exciting cause, for instance, cannot be overlooked in determining the plan of treatment. Where mania is traceable to excessive intoxication, blood-letting, even to a considerable extent, is often required, and for the most part is borne well. The temperament and general habits of the patient are equally to be consulted.

4. One of the earliest means of relief in mania which history has recorded, is the free administration of purgative medicines. There are few who can be ignorant of the presumed virtues of hellebore in this disease; and though the medicine has sunk in common estimation, the principle upon which it was resorted to is still acknowledged as correct. A disordered state of the alimentary canal is a frequent concomitant of maniacal aberration. So strongly is this marked in certain cases, that pathologists have described a peculiar variety of the disease under the title of *enteric mania*. It is characterized by obstinate constipation, the evacuations when procured exhibiting a most unhealthy aspect, a viscid secretion into the mouth, a failing or depraved appetite, coldness of the skin, scanty and high-coloured urine, and a rapid irritable pulse with restless nights. In this state of disease the use

of purgative medicines is to be long and patiently persisted in *.

5. The high degree of nervous irritation present in mania has induced physicians in all ages to expect relief from narcotic medicines, and most of them have been fully and fairly tried. Those which have obtained the highest repute are opium, hyoscyamus, and camphor ; but upon the whole, little reliance can be placed even upon them.

6. It would be improper to pass over without notice the warm bath, which in the hands of some modern practitioners has been productive of very marked good effects, and which the concurrent testimony of several intelligent men has stamped as a remedy of *general* and undoubted efficacy in the treatment of insanity†. It has been found particularly serviceable in cases of uterine or puerperal mania.

The cold bath, or bath of surprise, is spoken of in terms of at least equal commendation by others, but its administration requires to be regulated with a degree of nicety which few can pretend to, who have not enjoyed extensive opportunities of observation.

* Consult Dr. Edward Percival's " Report on the morbid Conditions of the abdominal Viscera in some varieties of maniacal disease, with the methods of Treatment."—Dublin Hospital Reports, vol. i.

† See " Evidence taken before a Committee of the House of Commons on Mad-houses," 1815.

Recent inquiries* have satisfactorily shown that mania, so far from being, as was once apprehended, an increasing malady in this country, is in reality less frequent than it was; and it is not unreasonable to suppose that this may have in some measure been the result of those improvements in the medical treatment and moral discipline of the insane, which it is for the honour of the present age to have introduced.

* See Burrows's "Inquiry relative to Insanity." London, 1820, page 106.

CHAP. VI.

CHOREA.

Literary Notices concerning Chorea — Symptoms and Progress of the Disease — Prognosis — Predisposition — Pathology — Method of Cure — Comparative Efficacy of the purgative and tonic Systems of Treatment — Influence of Arsenic.

CHOREA, commonly known by the name of St. Vitus's dance, received but little notice from the early systematic and practical writers in medicine. This neglect, however, it shared with many other diseases of early life, croup, hooping cough, hydrocephalus, marasmus. It is highly creditable to the pathologists of recent times that they have extended an equal share of their attention to every form of human suffering, and laboured assiduously in that field which their predecessors had unjustly deserted. From such censure the illustrious Sydenham is, for the honour of this country, exempt. His description of chorea is accurate and spirited, and has served as a model for every succeeding author. No improvement upon it appears to have been made for a long series of years, nor did it

again become an object of specific investigation until 1805, when Dr. Hamilton of Edinburgh turned his attention to the complaint, in the course of his inquiries into the utility and administration of purgative medicines. The account of chorea to be found in the useful work of that author* is by far the most precise and complete which has ever appeared, and leaves me no other task than that of brief analysis.

Chorea usually makes its first attack between the eighth and the fourteenth year of life. Dr. Hamilton mentions having seen the complaint originate between the ages of sixteen and eighteen, and I once saw it, in a very perfect form, in a young woman nineteen years of age. Its approaches are commonly slow. An awkward dragging of the leg, twitches of the muscles of the face, and unsteadiness of the fingers, precede the more general convulsive motions which characterize the confirmed state of the disease.

The contortions and gesticulations of the patient render him a singular but painful object of observation. All the muscles of voluntary motion are at different times and in different instances affected. Those of the face, neck, and extremities, more particularly suffer. The hands and arms are in constant motion. He can grasp no object, even with the strongest exertions of his will; he walks unsteadily;

* Observations on the Utility and Administration of purgative Medicines in several Diseases. By James Hamilton, M. D. Sixth Edition. Edinburgh, 1818. Chap. x. page 134. Chorea.

but with all this, there is no symptom of pain or uneasiness. The expression of countenance, though grotesque, is, in the early stage of the disease, that of good humour and contentment.

The convulsive agitations vary in violence, and are subject to occasional exacerbations. During sleep (unless in very bad cases) they cease altogether. As the complaint advances articulation becomes impeded, and is very often completely suspended. Deglutition also is occasionally performed with difficulty. The eye loses its lustre and intelligence. The face is thin and pale, and expressive of a languor and vacancy, which in severe and protracted cases approaches nearly to fatuity. The mind, indeed, partakes in some instances of the bodily disorder, and the mental faculties retrograde to those of infancy.

With these evidences of disturbance of the cerebral functions, are usually united very unequivocal marks of a deranged condition of the stomach and bowels. A variable and often ravenous appetite, a swelling and hardness, or sometimes flabbiness of the abdomen, with constipation, accompany in a large proportion of cases the onset of the disease. In its advanced periods we may observe impaired digestion, a very offensive state of the alvine evacuations, and flaccidity and wasting of the muscles throughout the body.

Chorea has always been found a tedious disease. The most experienced practitioners admit, that under the best regulated system of treatment it often continues for several months ; and many instances are recorded of its terminating only after the lapse of some years. Occasionally we meet with adults affected with convulsive twitchings of the face and arm, originating in early life, and of a nature closely allied to, if not identical with, chorea. They often exist, however, with acuteness of intellect, and a perfect state of all the functions, and are viewed rather as peculiarities of habit than as actual disease.

Chorea is not attended with danger. In the few cases which have been recorded of fatal termination, its character had merged in that of epilepsy, and it had probably become complicated with organic læsion of some structure within the cranium. It is a very important, but well-ascertained feature of the disease, that it admits of a natural cure. I have seen a variety of cases of genuine chorea which were never subjected to any kind of medical treatment, which gradually yielded in the course of three or four months. The same principle is more generally known as applicable to whooping cough ; and it is interesting in this manner to trace the pathological relations of two diseases which have little apparent connexion with each other.

Experience has fully proved that much may be done by medicines to shorten the duration of this disorder, and the slightest reflection will convince us

how requisite it is that they should be had recourse to early. While the disease lasts, an effectual check is put to the improvement of the youthful mind ; and though the danger to life from it be but small, yet its continuance for any length of time is attended with the risk of permanent fatuity. The fact of its capability of a natural cure should only be so far impressed upon the physician, as to make him distrustful of some of those medicines which have been brought forward too confidently for the certain removal of the disease.

It not unfrequently happens that chorea, after being to all appearance cured, returns, and perhaps with considerable violence. Still, surrounded as we are in this part of the work with diseases that almost preclude hope, it is consolatory to find one which, in almost all instances, can be effectually and permanently checked.

The causes of chorea are but little known, and that little is comprised under the head of *predisposition*. It attacks boys and girls indiscriminately, and those chiefly who are of a weak constitution, or whose natural good health and vigour have been impaired by confinement, or by the use of scanty or improper nourishment.

The pathology of the disease closely assimilates itself to that of the other forms of convulsive affection. It appears to depend mainly upon the peculiar *irritability* or *mobility* of frame which distin-

guishes the infantile periods of life, and the constitution of the adult female; and which is opposed to the *vigour* of manhood, and the *torpor* of advanced life. That this is a principle of considerable importance in the pathology of chorea, there can, I presume, be no question. I have seen it strikingly illustrated in those cases which originate in young women soon after the appearance of the catamenia, and which bear so strong an affinity to hysterical affections. Chorea, indeed, may without much refinement be characterized as the hysteria of an earlier age. Such an irritable state of body is very frequently associated with real *debility*, and therefore it is that we so commonly find chorea occurring in weakened and relaxed habits, and have so much reason to attribute it, as already stated, to scanty and improper diet. This debility or loss of tone in the general system constituted the leading principle in the pathology of chorea, according to the system of Cullen, and indeed all the professed systems of physic during the last century; and it naturally led to the exclusive employment of stimulant and tonic medicines in its cure.

In practice, however, it is highly necessary for the student to be aware, that the *irritable habit* of body is compatible with a state of muscular strength, and even of plethora; and that the convulsive motions which are among its more obvious marks, originate in some source of *local* irritation. Dr. Hamilton was the first who formally applied this acknowledged principle to illustrate the pathology

and direct the treatment of chorea. It was the chief design of his inquiry into the phænomena of this disease, to show that the debility and spasmodic motions, previously so much insisted on, were not its *leading* characters, but that they depended on an ulterior derangement of the stomach and bowels. Such a view of the nature of chorea has been gaining ground in this country since the publication of Dr. Hamilton's work ; and though it would be contrary to all pathological analogy to expect, and to all observation to maintain, that it includes the whole theory of the disease, still it may fairly be assumed as a doctrine of very extensive application.

The general principles of treatment in chorea naturally flow from the considerations which I have now pressed upon the notice of the student. Medicines have been administered with three distinct objects, *viz.*—1. To remove the constipated state of the bowels, and regulate their functions: 2. To strengthen the general system: 3. To break in upon that disposition to habitual recurrence which spasmodic actions, once excited, are so apt to leave. On each of these indications of cure, and the best means of fulfilling them, I shall, in conclusion, offer a few practical suggestions.

1. The extensive experience of Dr. Hamilton in the administration of purgative medicines in chorea, qualifies him to become a most useful guide in this branch of medical practice. He informs us, that the quantity of fæculent matter collected in the bowels

is, in many instances, enormous, and bears no proportion to the fulness and prominence of the abdomen. He imagines it to have a reference to the *duration* of the disease, and its natural consequences the want of sensibility in the intestines. In the early stage of the complaint, while the bowels still retain their tone, and before the accumulation of fæces is great, gentle purgatives, repeated as occasion may require, will effect a cure, or rather prevent the full development of the symptoms. In the confirmed stage, cathartics of a more powerful kind are demanded, and to ensure success, they must be persevered in steadily, and with a confidence which can be derived only from a conviction of the true nature and causes of the disease.

Here, as in all other cases of extreme debility, the recovery is slow and gradual. A regular appetite for food, a more intelligent eye, and a returning playful temper, are the preludes to that cessation of inordinate movements in the muscles which we are not to expect as the *sudden* reward of our exertions. The bowels must even continue an object of attention for a considerable time after a salutary change in their state has taken place. The occasional stimulus of a purgative will be necessary to support their regular action, and to provide a security against renewed accumulation, and consequent relapse.

In this disease, and indeed wherever a disturbed state of the natural functions constitutes a *primary*

feature in pathology, it is indispensable that the practitioner should personally inspect the alvine evacuations. The attendants in a sick room are ignorant of the different principles upon which purgatives are administered, and incapable of forming an opinion as to the kind or degree of effect which is contemplated in each particular case. By personal inspection alone can the physician adequately judge of the effect of one dose, or speak with confidence of the necessity and extent of others. From the experience of Dr. Hamilton it would appear that it is comparatively of little importance what purgative is administered, provided we assure ourselves that the desired effect has been fully procured.

Chorea is occasionally complicated with worms in the intestines. This is not to be considered as a *common*, far less as a necessary concomitant of the disease. It suggests the propriety of exhibiting, in suspected cases, the oil of turpentine, in the dose of four or six drachms, and the effect may be kept up by the terebinthinate emulsion (No. 46).

2. It is not contended, however, by Dr. Hamilton, nor would it be consistent with common experience to maintain, that benefit may not also be derived from a system of tonic medicines and regimen. They restore energy to the torpid bowels, aid the operation of purgative medicines, and confirm recovery. Much may be done by light and nourishing food, and regular exercise in the open air. The cold bath has proved a most powerful auxiliary in

many cases, and in languid states of the system has often acted like a charm.

Of the tonic *medicines* which have acquired a character in the cure of chorea, I may particularly specify the preparations of steel. I have witnessed the best and most indisputable effects from a scruple of the ferrum ammoniatum, given three times a day. The cordial draught, No. 33, containing bark and aromatic confection, is well adapted for the ends in view. A moderate allowance of wine has also proved in numerous cases highly beneficial.

3. Like many other kinds of convulsive disease, asthma for instance, or hooping cough, chorea is often kept up in the system by a principle of *habit*; and in obstinate cases, which resist the plans of treatment now proposed, it becomes an object of importance to interrupt that chain of actions in the body which have been so long associated with convulsive movements of the limbs. With this intention physicians have frequently prescribed the several kinds of antispasmodic medicines; more particularly musk, the volatile alkali, opium, ether, and camphor. But of all the drugs exhibited with this view, arsenic appears to have been the most generally and decidedly successful. Several cases illustrating this fact may be found recorded in the Medico-Chirurgical Transactions*. The medium dose for a child of

* Vols. iv. x. and xi.

ten years of age is five drops of the arsenical solution three times a day.

Differences of opinion may exist as to the mode in which arsenic operates. If I might indulge a conjecture, I should be inclined to attribute the influence which it undoubtedly possesses in certain cases of chorea, to the same principle for which we have recourse to it in the treatment of agues. That principle I have already attempted to explain. It is indeed obscure, but there are strong grounds for believing it to have a real foundation in nature.

CHAP. VII.

TETANUS AND HYDROPHOBIA.

General Character of tetanic Affections — Their Diversity of Origin — Tetanus, idiopathic and traumatic — Symptoms and Progress of idiopathic Tetanus — Prognosis — Causes — Enumeration of the proposed Plans of Treatment. — Of Hydrophobia — Its pathological Relation to Tetanus — Mode of its Communication from Animals to Man — Detail of Symptoms — General Character of the Affection — Prognosis — Dissections — Failure of all Attempts to cure the Disease.

To mark the very curious analogy subsisting between these diseases, I have placed them in the same chapter; fully aware, however, that there are so many and such important *distinctions* between them, as renders it necessary to give to each a separate consideration.

TETANUS.

In the introduction to the former volume, an attempt was made to impress upon the student the impossibility of fixing, with any certainty, the boundaries of physic and surgery. Among acute diseases, the principle admitted of a simple illustration in the

phænomena of erysipelas. It is equally well exemplified among chronic diseases, in the history of that singular affection to which my attention is next to be directed.

The nosological character of tetanus is derived from the presence of *tonic* or rigid spasm in the voluntary muscles of the body, more or less general. It is in this manner distinguished from the common form of nervous affection, to which the term *convulsion* is popularly applied, and in which contraction and relaxation alternate in rapid succession. Tetanus, moreover, is characterized by the powers of sensation and thought remaining unimpaired; and in this respect also, it is strongly contrasted with epilepsy.

Nosologists have been at pains to describe different *species* of tetanus. When the affection is confined to the muscles of the jaw and throat, it has been called trismus, or *locked jaw*. When the great extensor muscles of the back are principally implicated, by which the body is bent backwards in the form of an arch resting on the occiput and heels, the disease has received the name of *opisthotonos*. The term tetanus has been restricted to those cases in which the flexors and extensors being equally affected, the whole body is permanently rigid but straight. These distinctive appellations are so far useful as they express briefly the different *grades* of tetanic disorder; but the student will bear in mind that they are not to be received as indicating any differ-

ence in the *kind* of affection. To these acknowledged varieties in the character of tetanus, nosologists have added two others;—the *emprostotonos* and the *pleurostotonos*, the forward and the lateral tetanic curvature. The former is very rare, the latter is rather the offspring of fancy, than the result of accurate observation.

Other distinctions among tetanic cases have been noticed by authors, infinitely more important than those which have reference to the *seat* of spasm. The one is into the *acute* and *chronic*, according to the duration, and consequently the *intensity* of the disease. The other is into the *idiopathic* and *traumatic* tetanus; a division founded on that remarkable diversity in the *origin* of the complaint, which has been acknowledged from the earliest times. It must indeed ever be regarded as a very singular fact in pathology, that an affection of so peculiar a character as this, should have its source in causes apparently so dissimilar;—that the puncture of a nerve, the laceration of a tendon, or an extensive burn, should bring on the same *kind* of nervous affection as that which is the occasional consequence of *cold*.

In the further remarks which I have to offer on the subject of tetanus, I shall principally have an eye to the *idiopathic* form of the disease, as being that to which the attention of the physician is principally called. The *phænomena* of the disease, however, from whatever cause arising, admit of very little variation. The exclusive view which is here con-

templated will be principally apparent when the *treatment* of the affection comes under discussion.

The approaches of the disorder are commonly gradual, and it slowly advances to its worst stage. One of the first symptoms of incipient tetanus is a sensation of stiffness about the neck, which increasing by degrees renders all motion of the head painful and difficult. The patient now experiences an uneasiness about the root of the tongue, which soon passes into difficult deglutition. The aversion to swallowing in this disease is often so great, that the patient refuses all nourishment, and the administration of remedies is rendered equally hopeless. The temporal and masseter muscles are at the same time affected, and the lower jaw being thereby firmly closed, the state of trismus becomes fully developed. In slight cases the affection does not advance further, but this can rarely be expected. The tetanic disposition once formed, proceeds, with but few exceptions, to exhibit its deeper and more formidable shades of character.

One of the most constant and remarkable symptoms of confirmed tetanus, is a severe pain, referred to the bottom of the sternum, and darting from this point backward to the spine, evidently in the direction of the diaphragm. This *constrictive* pain is the precursor of more violent spasms of all the muscles of the neck and trunk. As these increase in force, the body is raised in the form of a bow ; and thus it remains until the disease has reached its acme, when

the flexors act so powerfully as to counterbalance the extensors, and to retain the body in a straight and immoveable position.

In this extreme period of the disorder, every muscle of voluntary motion becomes affected. The eyes are fixed in their sockets ; the forehead is drawn into furrows ; the whole countenance undergoes the most extraordinary change. The muscles both of the upper and lower extremities partake of the general spasm and stiffness. Those of the abdomen are strongly contracted, and the belly feels hard and tense as a board. At length a violent convulsion puts an end to the life and sufferings of the patient. These sufferings are usually greater than it is possible for words to express. Their continuance, even during the ordinary period of the disease, would hardly be compatible with life, but for the occasional *remissions* which, in common with the spasms, they undergo*. The muscular relaxation, however, is trifling, and the intervals of ease but momentary. The recurrence of aggravated spasm frequently happens without any assignable cause. Sometimes it is determined by the efforts of the patient to swallow, speak, or change his posture.

When the spasms are general and violent, the pulse is contracted, hurried, and irregular. The

* Sir Gilbert Blane has recorded one very uncommon case of tetanus, in which the spasms were accompanied with a tingling sensation, rather agreeable than distressing. The case terminated fatally, but to the last no pain was experienced.

respiration, too, is similarly affected; but during a remission, they both usually return to their ordinary state; and feverish symptoms are rarely met with, even in the idiopathic form of the complaint. The same remarkable freedom from disease characterizes the abdominal functions. The appetite not unfrequently remains good throughout the whole course of the disorder. The tongue is always moist, and the skin natural in an early period of the disease. In its progress, however, a cold sweat covers the surface; and there supervenes obstinate constipation of the bowels, requiring the most drastic purgatives. The mental faculties are sometimes preserved entire even to the latest stage of the disorder. Delirium happily comes on in other cases.

The duration of these distressing symptoms is subject to considerable diversity. Dr. Wells records a case at St. Thomas's hospital, which proved fatal in twenty-four hours. The usual termination of the disease may be stated to occur on the third or fourth day; and very rarely is it found protracted beyond the eighth. It is unnecessary for me to add how very large is the proportion of tetanic cases which end unfavourably. It is not improbable that the immediate cause of death may be the implication of the heart itself in the general spasm of the body. In a few instances the patient appears to die as if exhausted by the continuance of excruciating pain.

It is a gratifying reflection, that occasionally, even where the disease has been most fully developed,

a favourable event has taken place. In such cases it has been noticed that the decline of the symptoms is very gradual, and that the patient long continues in a state of extreme weakness, suffering at the same time very acute pain in those muscles which had been chiefly affected during the height of the disorder.

I have already remarked that there is a chronic variety of tetanus occasionally witnessed ; and I may now add, that it is of a much milder character than the acute species already described. It has been known to continue for five weeks, though it seldom exceeds three. With reference to prognosis, it should also be observed, that tetanus of the idiopathic kind has certainly been recovered from in a larger proportion of cases than that which follows external injury.

In neither form of the complaint has dissection thrown any light upon its nature or proximate cause. Sometimes slight effusions are found within the cranium. There is always more or less of an inflammatory appearance about the œsophagus and cardiac portion of the stomach. Traces of disease in the theca vertebralis have also been recorded, but they are not sufficiently uniform to authorize our attaching any degree of pathological importance to them.

The only known sources of idiopathic tetanus, are cold, and disordered states of the primæ viæ. To generate this form of disease, however, it would

appear that a certain *predisposition* is also requisite, and it is doubtless the same with that which operates as an *accessory cause* of the traumatic tetanus. The predisposition to tetanic affections is given in the first place by warm climates and warm seasons. Within the tropics, therefore, it prevails to an extent unheard of in colder latitudes. Secondly, tetanus is chiefly observed to prevail when the atmosphere is much loaded with moisture, and particularly where this has suddenly succeeded to a long course of dry and sultry weather. Even in this country, exposure to the cold and damp air of the night has occasionally been followed by an attack of tetanus.

In hot climates every class of persons is liable to its ravages. Infants, a few days after their birth, are frequently the subjects of it. The male sex more commonly suffer than the female; and of the former, the robust and vigorous, more than the weak and irritable. Tetanus from cold occurs for the most part within three or four days after exposure to the exciting cause. Tetanus from an injury generally comes on about the eighth day. It is remarked by Sir James M'Grigor (who gives the results of his extensive experience in this disease in the *Medico-Chirurgical Transactions* *), that if it does not occur for twenty-two days from the date of the wound, the patient is safe from its attack.

Among the questions of greatest interest which the investigation of tetanus presents, are those which

* Vol. vi. p. 449.

relate to the *kind* of wound which is most commonly succeeded by tetanic symptoms, and to the *local* means of prevention and relief. But these are points which belong exclusively to surgery. I therefore omit them, and hasten to the enumeration of the several plans of *constitutional* treatment which have been proposed for this most painful and fatal disorder.

Their variety must naturally create much perplexity to the student; and this will be still further increased, when he discovers them to be of the most opposite characters, and that, while each has occasionally succeeded, it has still more frequently failed.

When we reflect upon the obscurity which involves the proximate cause of tetanic affections, we need not wonder that the practice in them should still be entirely empirical. Ignorant as we are of the very elements of their pathology, it cannot be expected that theory should assist us; and though the most extended trials have been made, experiment has hitherto completely failed in unfolding the secret of their cure. We have no reason, however, to consider tetanus as beyond the reach of medical art. It is our duty therefore to persevere in our efforts; and till a brighter epoch arrives, to employ diligently those means of relief which have hitherto been attended with the greatest degree of *comparative* success.

1. Opium is the remedy on which we are to place our chief, if not our only reliance. To give it a fair chance of success, we must begin its use from the earliest appearance of tetanic symptoms. It must be given in very large doses; and these doses must be repeated at such short intervals as to keep the system constantly under the influence of the remedy. It is astonishing to observe how the body, when labouring under a tetanic disease, will resist the operation of this and other remedies, which in its healthy state would have been more than sufficient to overpower and destroy it. It is advisable to begin with fifty drops of laudanum, and to repeat this at intervals of two or three hours, or even oftener, if the urgency of the symptoms requires it, until some effect has been produced on the spasms. In the early stage of the disease, we are to bear in mind the approaching closure of the jaw and difficulty of deglutition; and our remedies are to be pushed before such serious obstacles to their administration arise. Where they have occurred, and are found insuperable, opiate enemata and frictions may be tried; but we must not anticipate much benefit from such feeble means.

2. Purgatives claim the next place. Sir James M'Grigor informs us, that the operation of calomel on the bowels was always useful, and singularly so in the mild form of tetanus, distinguished by the spasms coming on *slowly*, and continuing of the *same* violence. A rigid perseverance in the exhibition of purgatives (wherever practicable) is therefore to be advised.

3. Of the remedies which have been employed for the cure of tetanus, none have acquired a higher degree of credit than the cold bath. Dr. Wright has detailed* several cases, both of idiopathic and traumatic tetanus, occurring in hot climates, in which it was had recourse to with complete success. Later experience, however, has shown, that in tetanus from wounds it is of little or no avail.

The other plans of constitutional treatment which have been devised for the relief of tetanus, may be discussed in a few words. The warm bath is now generally abandoned, after the most satisfactory proof of its inefficacy. Bleeding is equally to be condemned. The employment of wine, bark, and aromatic cordials comes recommended to us on the strong authority of successful experience. Camphor, musk, and the other antispasmodics deserve a trial. Mercury has been proved, by adequate observation, to be totally inert.

HYDROPHOBIA.

This disease is usually considered by pathologists as the consequence of a morbid poison, introduced into the system by the bite of a rabid animal. The general features of the disorder correspond perfectly with such a notion; but it is not to be overlooked, that a strong analogy exists between hydrophobia and tetanus, and that the former might, with no incon-

* See Medical Observations and Enquiries, vol. vi.

siderable claim to pathological accuracy, be viewed as a kind of tetanic affection, supervening upon wounds of a particular character. The points of analogy between these diseases will appear as I proceed to describe the symptoms and course of hydrophobia; but I wish first to call the attention of the student to an important *distinction* that exists between them. Idiopathic tetanus we have seen to be both a frequent and a very fatal disease. Idiopathic or spontaneous hydrophobia has *never* been known to occur in the human subject,—never at least under such circumstances as to remove all suspicion of preceding local injury.

Hydrophobia has certainly existed from a very early period of the world. The first allusion to it is to be found in the writings of Aristotle; but it is to Cælius Aurelianus that we are indebted for the original description of the symptoms and progress of the disease. From his time, unceasing attention has been paid to every phænomenon which it presents, and nothing is wanting, which observation can supply, to perfect our knowledge of it. Like tetanus, however, its cure has hitherto equally evaded the suggestions of pathology, and the blind attempts of empiricism. The investigation of the disease therefore must be conducted with a view to elucidate its peculiarities and pathological affinities, without any prospect of practical advantage.

From the most distant times inquiries have been directed to ascertain, what animals are capable of

originating, receiving, and propagating hydrophobia, and what is the precise mode of its communication from animals to man. The opinions of authors on these subjects have been mixed up with many idle tales, but the following may be taken as a summary of the best established results to which their researches have led. The disease almost always commences among animals of the canine race. It is questionable how far it ever originates even in those of the cat kind. To them, however, it is readily *propagated*, and they possess, equally with dogs, the power of transmitting it to man, and to every species of quadruped. It is a matter of doubt, whether birds are susceptible of the disease. Herbivorous animals appear incapable of communicating it, and this is even still better ascertained with regard to man. Innumerable attempts have been made to propagate the disease by inoculating animals with the saliva of patients labouring under hydrophobia, but they have always failed.

Of the causes of this peculiar distemper in dogs nothing certain is known. That it originates *spontaneously* in them is now the general opinion, but it is equally well ascertained that among them it chiefly spreads by inoculation. In respect to the mode of its communication from animals to man, the facts in proof of the reality of a peculiar infectious principle are too numerous to admit of dispute. It is universally allowed, that the poison cannot operate on the sound skin. In many instances, indeed, the wound has been so slight as to escape notice, but it

may be stated as an invariable law, that for the hydrophobic virus to take effect, it must be applied to an abraded, wounded, or ulcerated surface.

A question has arisen, whether the infectious principle resides in the salivary secretion, or in the mucus of the trachea and bronchia. It has even been conjectured, that it is more or less diffused through all the solids and fluids of the rabid animal. This latter suggestion may at once be set aside; but the former opens a curious subject of inquiry. The appearances of inflammation so common about the pharynx, render it by no means improbable that the mucous secretion of that part may undergo some change, by which it is enabled to propagate the disease.

There is some difficulty in ascertaining how it happens, that of a number of persons bitten by a rabid animal, a certain proportion only are subsequently attacked by hydrophobia. The influence of prophylactic measures may be altogether excluded, and differences of constitutional disposition can hardly be trusted to. The circumstance is probably referable to the ineffectual application of the poison in the cases that escape. This conjecture is rendered the more probable by the acknowledged fact of bites upon the face and hands being always more dangerous than where the tooth had previously passed through cloth or leather.

Hydrophobia, as it affects dogs and other animals, exhibits a very different train of symptoms

from that which is observed when man is the subject of the disease. For the former, I beg to refer to a very ingenious paper by Mr. Meynell*; the latter, I shall now proceed to describe, partly from my own observation, and partly from the very admirable memoir on hydrophobia, published by Dr. John Hunter†.

The interval between the bite and the development of hydrophobic symptoms (in other words, the *latent period* of the virus), is subject to considerable variation. Among the *genuine* cases which I have seen recorded, the shortest period was twenty-one days, and the longest nine months. Six weeks may be stated as the average; after which time the chances of escape are greatly increased. It is a curious circumstance, that during all this time there is no local irritation observable in the bitten part, nor any derangement of general health, or perceptible change in the constitution, provided the person bitten be not under the influence of fear.

For two or three days previous to the coming on of the more unequivocal symptoms of the disease, the patient often complains of chilliness, some degree of headache, languor and lassitude, low spirits, and restlessness. Frequently also a sense of coldness and numbness is experienced in the bitten part,

* Duncan's Medical Commentaries, vol. xix. p. 90.

† Transactions of a Society for the Improvement of medical and chirurgical Knowledge, vol. i. art. 17.

occasionally amounting to actual pain. This, in some instances, extends up the limb, and it has been observed to follow the course of the nerves rather than that of the absorbents. The freedom of the lymphatic glands from disease, indeed, has often been noticed, and adduced as an argument that the disorder does not depend on the absorption of any virus.

The second or *confirmed* stage of hydrophobia commences with that symptom which gives name to the disease—the horror of liquids. The distressing sense of suffocation, and the violent spasmodic agitation of the whole body, brought on by the sight of liquids, or the attempt to drink, is unquestionably the most remarkable symptom of the disorder. By degrees the disposition to spasm increases so much upon the patient, that not merely the sight of water, but the least exertion of speaking or moving, the slightest noise, or the entrance of a stranger into the room, brings it on. Extreme irritability and sensibility of the whole frame are apparent indeed in every action of the patient, and constitute the unvarying feature of the complaint.

It might be imagined from the very general use of the term *canine madness*, that delirium was one of its usual symptoms. But this is not so. In a large proportion of hydrophobic cases the mind has continued perfectly clear up to the last moment. In others, where delirium did occur, it was not until a late period of the disease. But though the patient is

sensible, he is in the highest degree timid and *nervous*. As the disease advances, the mind is more and more filled with dreadful fears and apprehensions.

Excessive anxiety is apparent in the countenance. Almost immediately after the disorder distinctly manifests itself, the respiration is hurried and *gasping*, and the patient commonly complains of an oppression about the præcordia. The pulse is seldom much affected till towards the latter periods of its course, when it becomes small, irregular, feeble, and rapid. Blood has frequently been drawn from the arm, but it has never, I believe, been observed to exhibit any inflammatory crust.

The secretions about the mouth are always very much affected. The saliva is usually viscid, and increased in quantity. The patient complains of a parched mouth and thirst, on which account he continually calls out for drink, which yet no persuasions can induce him to look at, much less to swallow. A frothy saliva is frequently ejected, to the great terror of bystanders, but it arises merely from the patient's inability to swallow.

Hydrophobia is not characterized by any great degree of debility: instances have occurred of persons running a considerable distance, and making great muscular exertion, within a few hours of their death. The degree of bodily weakness which has been observed in particular cases, is perhaps as

much attributable to the remedies employed, as to the natural effects of the disorder. Its duration varies from two to five days, reckoning from the invasion of the *pathognomonic* symptom. The average does not appear to exceed forty hours. The *immediate* cause of death has never been very accurately ascertained, either in the case of tetanus or hydrophobia. Some patients die in a convulsion fit; the greater number sink under the excessive exhaustion of nervous power.

The prognosis in hydrophobia may be discussed in a very few words. There is not, to the best of my judgment, a single unequivocal case on record, of recovery from this disease. A variety of supposed cures may indeed be found. The first volume of the Transactions of the London College of Physicians contains two, but the slightest reflection will convince the reader that neither in origin, symptoms, or progress, did they substantiate their claim to the character of hydrophobia. It must be viewed, therefore, as the only known disease which has hitherto completely resisted the efforts both of nature and of art.

This melancholy fact cannot be imputed to any neglect on the part of the cultivators of morbid anatomy; on the contrary, the appearances on dissection in those who die of hydrophobia have been recorded with a degree of minuteness, which, favourably as it speaks for their zeal, is a proof at the same time how little aid the science is calculated

to afford to the mere *practitioner* in physic. The usual appearances are turgescence of vessels (by some called marks of inflammation) about the pharynx. In some cases a similar state of parts has been observed about the cardiac orifice of the stomach. Sir Astley Cooper, from a minute examination of several dogs who have died rabid, has found reason to believe that it consists in an effusion of blood in the cellular membrane connecting the mucous and muscular coats of that organ. No morbid appearance has ever been traced in the brain.

A detailed exposition of the different means which have been resorted to for the relief of hydrophobia would be attended with little benefit to the student. It could only impress upon him that which I have already attempted to urge, the uniform fatality of the disease, and the inefficacy of medical art. It will be sufficient to say, that an ample trial has been given to blood-letting, opium, mercury, ammonia, arsenic, musk, and many other antispasmodics; besides a variety of drugs which had nothing to recommend them but the caprice of the practitioner. The latest trials have been made with blood-letting, and though it acquired a doubtful fame in India, the experience of this country has decidedly proved it to be unworthy of general adoption.

Where all plans of treatment have alike failed, it is obviously impossible to offer any useful sug-

gestions for the guidance of the student. *Prevention*, and not cure, must be his object. It is unnecessary, with this view, to inculcate formally the simple dictate of common sense—a speedy excision of the bitten part. If this is effectually done, the safety of the patient may be considered as ensured. Instances, unfortunately, are not unfrequent of hydrophobia supervening after such an operation, but it is fairly presumable that in such cases some minute wound had escaped the eye of the surgeon. Caustic may come in *aid* of the knife; but considering that the life of the patient is at stake, it should never be allowed to supersede it.

On the preventive *remedies*, sea-bathing, and the Ormskirk and Tanjore specifics, I have of course nothing favourable to report. The whole subject is painful, and I gladly leave it, in the hope that science or chance may one day furnish us with a means of combating, even partially, this formidable malady.

CHAP. VIII.

NEURALGIA.

Literary History of this Affection—Its nosological Divisions—Neuralgia facialis, or Tic Douloureux—Its Seat and Symptoms—Prognosis—Diagnosis—Pathology—Treatment—By Narcotics—By surgical Operation.

NOTHING can be collected from the works of any of the ancient authors in physic, regarding that chronic painful affection of the nerves to which the appropriate term of neuralgia is now applied. The first intelligible description of such a complaint, under the title of *tic douloureux*, appeared in the year 1756, forming part of a treatise on the diseases of the Urethra, by M. André, surgeon, of Versailles. In 1766 appeared Dr. Fothergill's full and admirable paper on the subject *, which, though partially anticipated by the brief notice of the French author, is well entitled, from its various merits, to be considered as the *original* account of the disease. Since that period a variety of memoirs on neuralgia, and notices of neuralgic cases, have been given to the

* First published in the fifth volume of the Medical Observations and Enquiries.

world in the different periodical journals. Among these an ingenious essay by Dr. Haighton deserves particularly to be mentioned*.

Nosologists have subdivided neuralgia into different species, corresponding with the nerves which are the seat of pain. The first, and infinitely the most common form of the disorder, is the neuralgia facialis,—the *tic douloureux* of the French authors. The second in point of frequency is the neuralgia pollicis. Cases are recorded also, in which the same painful affection existed in the nerves of the foot and mamma. They arise without any assignable cause, and are, in the strict sense of the term, *idiopathic* affections. There are, however, others of a very similar character, which can be traced to injury of a particular nerve. These may with propriety be classed under the title of symptomatic neuralgia. For the present I confine my attention to the symptoms, pathology, and treatment of that singular disease to which public attention is now so strongly directed—the *neuralgia facialis*.

This affection has its seat in one or more of those branches of the fifth and seventh pair of nerves which ramify upon the face. The nerve most frequently affected is the portio dura of the seventh: next to this comes the second branch of the fifth, then the first of the fifth, and the least frequent of all is the maxillary neuralgia, in which the third of the fifth

* Medical Records and Researches, p. 19, 1798.

is primarily implicated. The pain is of a peculiar kind, shooting in a direction which corresponds perfectly with the course and communications of the affected nerve. It will almost always be found to *originate* in a single nerve, from the point at which it issues from its bony canal. From this as from a common centre it spreads, until in the progress of the disease it comes to affect every nerve of the face.

In neuralgia the pain is, in the first instance at least, confined to one side of the face; it occurs always in paroxysms which lengthen and recur more frequently in proportion to the duration of the complaint. It is often excited to an extreme degree of violence by the least exertion of the body, by speaking, the slightest touch, or even a breath of wind. When the affection is fully formed, the pain of it appears to exceed any other variety of human suffering. It occurs with equal severity by day and by night. It is attended with convulsive twitchings of the muscles of the face, which afford a striking feature of the disease, and often impress upon the observer a sense of the acuteness of that pain which the patient experiences.

The natural tendency of the disorder is to rivet itself in the habit, and to terminate only with the life of the patient. It has been known to last upwards of twenty years, and though it renders life a miserable burden, yet has commonly but little influence in sapping its foundations.

The causes of the disease are involved in the deepest obscurity. Of its immediate exciting causes nothing whatever is known, and of those which predispose to it but little. It attacks both sexes, and apparently in an equal ratio. The robust and the delicate are equally its victims. It rarely originates under thirty years of age. There is reason to suspect that it is rather on the increase in this country, but to what circumstance this can be attributed it is in vain to conjecture.

Neuralgia has been in a few cases mistaken for rheumatism of the face, toothache, intermittent headache, or abscess of the maxillary sinus. The diagnosis is not difficult when to the accurate examination of symptoms we add an inquiry into the origin and subsequent progress of the disorder. It would be for the honour of medicine if we could with equal facility unfold its pathology. Dr. Parry has thrown out the hint, that the proximate cause is a chronic inflammation and thickening of the neurilema or vascular membranous envelope of the nerves. Other pathologists have conjectured that neuralgia consists mainly in some obscure affection of the brain. From having known the disease in one instance to terminate fatally by coma, and in another to be followed by amaurosis, I am inclined to look upon this as the correct view of the case, and as fully borne out by the results of experience. The affection has resisted the most vigorous efforts of art with a degree of obstinacy which can be paralleled only by the want

of success which so generally attends us in epilepsy, tetanus, and palsy.

The means hitherto devised for the relief of this disease consist in the employment of narcotics and nervines, local irritants, and the division of the affected nerve. Of the class of narcotics, the principal now in use are opium, conium, and belladonna. Opium constitutes, in fact, the only *effectual* means of relief which we have it in our power to afford. Cicuta was originally recommended by Dr. Fothergill, but his high encomiums have unfortunately not been supported by the results of later experience. Belladonna, in the hands of some practitioners, has been productive of occasional advantage. If a trial of this remedy should be advised, the greatest caution is necessary in the administration of it, so peculiar and so rapid are its effects upon the nervous system.

Among the nervines which have acquired a character for the relief of neuralgia, may be mentioned bark, arsenic, and iron. The local irritants which have chiefly been employed are leeches and blisters, embrocations with the cerussa acetata, issues, and electricity. In the case of a young woman who came under my care some years ago, having many of the symptoms of neuralgia, decided benefit was obtained by the application of leeches, a blister, and the free employment of purgative medicines. The affection under which she laboured is not uncommon; and I particularly allude to it here,

having reason to believe that it is sometimes mistaken for *genuine* idiopathic neuralgia. From this, however, it differs in the circumstance of its occurring at an earlier period of life. I have observed it only in young women; and I believe it to depend chiefly, if not entirely, upon a disordered condition either of the stomach or bowels.

The idea of dividing the affected nerve first occurred to the French surgeons in 1766, but was not generally adopted until the result of Dr. Haighton's experiment, in 1788, became known. In that case the operation proved completely successful; but subsequent experience has greatly diminished the hopes that were entertained of the probable benefits of such a measure. It has even appeared in some late instances to add to the sufferings of the patient. The excision of a portion of the nerve has been practised in a few cases without any corresponding advantage.

For the present, therefore, we can do little more than palliate the symptoms. The discoverer of a medicine worthy of general confidence will have a strong claim upon the gratitude of mankind.

I have too little experience in the other varieties of idiopathic neuralgia, to enter upon their consideration with any prospect of utility to the student; and authors are almost silent on this neg-

lected portion of pathology. A paper by Mr. John Pearson, in the eighth volume of the *Medico-Chirurgical Transactions**, gives a detailed account of a painful affection of the extremity of the left thumb, of a decidedly neuralgic character. After resisting a variety of plans of treatment, it ultimately yielded under the use of a liniment, which produced a high degree of irritation in the skin of the arm.

To this paper are annexed some useful reflections on the nature and management of those cases of symptomatic, or local neuralgia, which are the consequences of injury to a nerve; but on a subject which is strictly within the province of the surgeon, the general design of this work relieves me from the necessity of offering any observations†.

* Page 252.

† The reader who may wish for some further information on the subject, may consult with advantage Mr. Swan's "*Dissertation on the Treatment of morbid local Affections of Nerves.*" London, 1820. Cap. iv. and v.

*Library of the Surgeon-General's Office
U.S. Army
Washington, D.C.
1820*

CLASS II.

CHRONIC DISEASES OF THE THORAX.

CHAP. I.

BRONCHOCELE.

Nature of the Affection—Symptoms and Progress of the Disease—Speculations concerning its Cause—Treatment—By Medicine—By surgical Operation.

BRONCHOCELE, or the goitres, is a chronic indolent enlargement of the thyroid gland, occasioning swelling of the fore part of the neck, often to such an extent as to produce great deformity. The tumour, however, is quite free from pain, and does not appear to give rise to any degree of constitutional disturbance. There is no malignity in the disease, nor is there any disposition in the tumour, except from accidental circumstances, to take on inflammatory action.

The precise nature of the swelling which constitutes bronchocele has been a frequent object of investigation. When a section is made of a thyroid gland affected by this disease, it is found to consist of a congeries of cells containing a transparent viscid fluid*. The size of these cells is different in different cases, although to external appearance the tumour in all exhibits the same character. It varies even in different parts of the same gland. Some of these cells are sufficiently large to contain a pea, but the generality are of a size somewhat smaller than this. Reasoning from the change of structure thus observed, Dr. Baillie throws out a conjecture that bronchocele may depend upon an increased and vitiated secretion from the gland, which gradually distends the cells, and forms the swelling which characterizes the disease.

Doubts, indeed, have been entertained, whether all cases of bronchocele are essentially of the same nature; in other words, whether there are not different *species* of this disorder. It has been attempted to establish distinctions between the sanguineous and the sarcomatous, between the common and the scrofulous bronchocele, but these are probably not to be trusted to. Of this at least we may be confident, that if any essential differences do exist in the morbid changes of structure which the gland undergoes, the appearances presented on dissection are not suf-

* Vide Baillie's Morbid Anatomy, fifth Edition, p. 91.

ficiently uniform to warrant us in characterizing them with precision.

There are, it is true, some slighter variations in the affection, which have always been acknowledged. The tumour varies very much, for instance, in point of consistence. It is sometimes hard and unyielding; at other times, soft and spongy. In some cases the whole body of the gland is involved in the disease, while in others the swelling is partial, affecting one lobe of the gland only, or portions of it, so as to occasion tumours that project irregularly over the anterior part of the neck.

In all cases of bronchocele there are grounds for believing, that an unusual determination of blood to the gland takes place. There is very often a sensible throbbing of the tumour during life. After death, too, the blood-vessels connected with the gland, both arteries and veins, are found enlarged, and this enlargement is made particularly apparent by injecting them.

The size which the tumour acquires after a lapse of years is often enormous, and its mere weight produces no inconsiderable inconvenience. The adjacent cellular membrane and lymphatic glands in process of time participate in the disease, and the whole neck becomes enlarged. It is rather a matter of astonishment that this should exist without prejudice to the life or general health of the patient, than that it should occasionally give rise to alarming

symptoms, and be the immediate cause of death. The tumour itself becomes in some instances painful, the veins of the neck enlarge, there is hoarseness and headache, and that long train of evils is felt which inevitably results from obstructed respiration.

The causes of bronchocele being involved in great obscurity, have given rise to much discussion among medical men. It has usually been the object of authors to discover some one cause to which every case of bronchocele may be traced ; but it is, I think, very questionable how far such an expectation is well founded. It is one certainly not warranted by pathological analogies. Like swelling of the liver or spleen, bronchocele may possibly have many causes, differing essentially from each other. For practical purposes at least, all that it appears necessary to inquire into is, under what circumstances bronchocele shows itself. We may thence deduce some conjectures as to the actual causes of the complaint.

1. Bronchocele is rarely, if ever, observed in children. Before the ninth year, it is stated to be almost unknown. It commonly makes its first appearance about the period of puberty ; and this circumstance would lead to a conjecture that the disease may, to a certain degree, be connected with the change in the whole system observable at that period. The alteration of the voice is a decisive proof that at least the parts in the neighbourhood of the thyroid gland then undergo some peculiar and unexplained

change. As life advances bronchocele becomes more and more common, and in districts where it prevails extensively, few persons reach to an advanced age without experiencing it in a greater or less degree.

2. Bronchocele chiefly prevails in persons of relaxed constitutions, and in such as have fair and delicate skins; hence it is that women are the subjects of this disease so much more commonly than men. In the same manner we explain why bronchocele is so often found to accompany scrofula. By many it has even been considered as one of the evidences of a scrofulous habit. Bronchocele has long been known to prevail in particular families, and its title to be ranked as an hereditary complaint is unquestionable. It has been remarked that where the family predisposition is very strong, the first attack of the disease occurs at a proportionably early period of life.

3. Bronchocele, though not absolutely unknown in any parts of the world, yet occurs in some with such extraordinary frequency as to have been considered the great *endemic* of particular districts. In valleys enclosed by lofty mountains, and in which the reflected as well as the direct rays of the sun occasion very dense fogs to be raised, this disorder more especially abounds. Hence it is so common in all the valleys of Switzerland, and generally speaking, so much more abundant in mountainous than in level countries. That its prevalence in these situations is not, as was once supposed, attributable

to the use of snow-water, nor to a poor unwholesome diet, is the concurrent testimony of all observers. It prevails in every part of the world, in the hottest as well as the coldest regions, and in every class of persons. It is common in Sumatra and many other climates where snow is never seen ; while in Greenland and Lapland, where the inhabitants use snow-water almost exclusively, bronchocele is hardly known. In America it chiefly prevails where the lands are covered with wood. In proportion as the country is cultivated and the lands cleared, it is found to decline. Goitres have been observed in places particularly open to the influence of southerly winds, in the neighbourhood of rivers and lakes, and generally, wherever much moisture prevails. It certainly appears most commonly among those who are exposed unguardedly to the influence of the weather. All these circumstances tend to point out an important connexion between bronchocele and some peculiarity in the climate. What this is it would be impossible accurately to specify, but it is apparently *humidity*. There may perhaps be some morbid exhalations from damp soils which give rise to bronchocele, but our ignorance of the nature and uses of the thyroid gland, joined to the obscurity which always attaches to reasonings on the origin of disease, will probably for ever preclude our arriving at any degree of certainty in these speculations.

The very extensive prevalence of this unsightly disorder is a sufficient proof how little is known con-

cerning the principles of its treatment, or rather how completely it is beyond the control of medical art. Every plan which ingenuity could suggest or caprice devise, has been tried; and tried in vain. It is still abundant in all countries, and as Dr. Somerville has observed, the families of medical men are not exempt from it. All practitioners however have agreed in this, that to entertain any sanguine hopes of curing bronchocele, the treatment must be entered upon while it is still in an incipient state. When the morbid structure of the gland has been thoroughly established, our chance of removing it even by surgical operation is extremely precarious.

The cure of bronchocele has been attempted in two ways, by constitutional and local measures, and the following are the most approved of the methods which are admitted in modern practice.

1. The internal administration of burnt sponge has found many warm supporters, and the instances of success from this remedy are so numerous, as might at first incline the student to believe that the object of his research is found*. No doubt can exist that this medicine has cured many cases, but it would be much easier to show those in which it totally fails of imparting even the smallest

* Consult the papers on the use of burnt sponge in bronchocele, in vols. iv. v. and xi. of the London Medical and Physical Journal, by Mr. Ring.

relief. It is stated that it proves most effectual when given in the form of electuary and lozenge, and allowed to dissolve slowly in the mouth. Its use should be continued at least four or five weeks before any opinion is given as to the probability of ultimate benefit from it. The mode of its operation is not at all known. By some the virtues of the remedy are made to reside in the alkali which it contains; others attribute every thing to the charcoal; and later theorists would persuade us that iodine is its active principle. These speculations have led to the introduction of different preparations containing iodine, as medicines likely to prove advantageous in the treatment of this disease; but how far they may be administered with *safety* to the patient, and with what real prospect of success, the observations of authors are as yet too scanty to enable me to judge.

2. Some benefit has been derived in bronchocele from the use of deobstruent medicines, more particularly the liquor potassæ, and the carbonate of soda in conjunction with small doses of calomel, and such gentle aperients as may regulate the functions of the bowels without weakening the system by too great evacuation. Rhubarb and the neutral salts in small doses are recommended for this purpose. Dr. Gibson of Baltimore speaks in very strong terms of the value of the extr. conii. He states that when well prepared and diligently persisted in, it seldom fails to afford relief under favourable circumstances—that is, where the patient

is not above twenty years of age, where the tumour is spongy, where the disease has not existed long, and where it occurs sporadically.

3. The application of leeches to the throat has been found useful, but to produce any decided effect upon the complaint they must be frequently repeated.

4. Frictions with mercurial ointment and camphor or with the soap liniment may be tried with some prospect of advantage, as calculated to excite the action of the absorbents. With the same view repeated blisters in the manner recommended by Mr. Benjamin Bell may possibly be serviceable. Simple pressure upon the gland appears to contribute, in no inconsiderable degree, to the dispersion of the tumour *. It is well ascertained that the constant use of a neckcloth has sometimes checked the progress of the disease when early resorted to; and to the want of such support I have heard Italian physicians ascribe the greater frequency of the complaint among females.

5. It is a well-established fact, that a simple change of residence from the valley where the goiterous person first received the disease, to a different district, or even to a higher spot on the side of the mountain, has in many instances diminished the size of the tumour, and occasionally removed it entirely.

* In the London Medical Repository, vol. viii. p. 288, will be found an interesting case of goitre cured by steady pressure; it occurred in the practice of Mr. Holbrook of Monmouth.

6. When the tumour becomes so large as to produce great deformity, or to endanger suffocation, or when, at an earlier period of its growth, the methods now proposed prove ineffectual, the aid of surgery has been in some cases called in, and relief has been attempted by an operation. Three surgical plans of treatment have been devised.

The first is extirpation of the thyroid gland, an extremely formidable and hazardous operation, of which I know but one successful case on record.

The second is tying the superior thyroideal arteries. A case in which this was tried, and which, for a time at least, proved successful, is to be found in the *Medico-Chirurgical Transactions**. The operation was performed by Mr. Coates in the Salisbury Infirmary, on a young woman seventeen years of age. The artery of the left side only was tied, and in a short time the size of the tumour was reduced one half.

The third plan of surgical treatment recommended in this disease is the insertion of a seton into the body of the gland. Several cases of partial, and one or two of complete relief from this remedy, have been lately brought under the notice of the profession†; but it is very doubtful whether the measure

* Volume x. p. 312.

† *Medico-Chirurgical Transactions*, vol. x. p. 16. Paper by Dr. Quadri, communicated by Dr. Somerville.

is entitled to that share of praise which was at first given to it. In some cases in which the seton was tried, it occasioned a high degree of irritation about the throat, which rendered its immediate removal indispensable.

Upon the whole, we are led to conclude, that though the means of relief in the hands of the physician are far from possessing any general or very decided efficacy, they are nevertheless to be preferred to those severe and more doubtful ones which surgery has hitherto afforded.

CHAP. II.

DYSPNŒA AND ASTHMA.

Nosological Difficulties connected with disordered Respiration
——*Of Dyspnœa as a Symptom of Disease*——*Its several Causes*——*Dyspnœa permanent and spasmodic*——*Asthma*
——*How characterized*——*Phænomena of the asthmatic Paroxysm*——*Progress of the Disease*——*Predisposition*
——*Exciting Causes*——*Pathology*——*Treatment*——
During the Paroxysm——*In the Interval*——*Influence of Nauseants* —— *Acids* —— *Narcotics* —— *Antispasmodics*
——*Laxatives*——*Tonics*——*Diet and Regimen.*

MUCH labour has been bestowed by nosologists in classifying the different kinds of disease which derive their chief character from disordered respiration, but to so little purpose, that the language of medical men in regard to them is even at present hardly more accurate than that of the world in general. The difficulties lie in the very nature of the subject, which is so extensive, so complicated, and so obscure, as not to admit of that precise elucidation which is indispensable in artificial arrangements. The function of respiration is of such importance in the animal œconomy, and the organs subservient to

it (membranes, blood-vessels, nerves, muscles, glands) are so numerous and so variously connected, that it is hardly possible for disease to exist without implicating it more or less. Accordingly, *difficult breathing* will be found to be one of the most frequent *symptoms* met with in practice ; and those who have ever experienced a fit of illness will acknowledge it as one which presses upon the patient more heavily than perhaps any other.

The *pathological* considerations connected with dyspnœa *as a symptom of disease* are of the highest importance, and they demand from the practical physician the fullest investigation which the state of the science permits. In the course of the present chapter I shall be led to touch upon most of those interesting topics of general inquiry which this branch of the study of physic involves ; but a complete discussion of them would far exceed the limits to which I have here confined myself.

The first questions of the student will naturally be, what are the immediate causes of difficult respiration, and which of them are the most frequently met with ? A reply to these inquiries will lead to a knowledge of the most important *practical* divisions which have been made among the cases of disordered respiration.

1. Difficulty of breathing, in the first place, is a symptom of *general fever*. The increased velocity with which the blood, during fever, passes through

the great vessels of the lungs, disturbs their functions, and the natural consequence is dyspnœa. 2. It occurs as a symptom of the early stage of inflammation in the *mucous* membrane of the lungs and air-passages, and is therefore a *leading* feature in laryngitis, croup, severe catarrh, and the several modifications of bronchitis. It is attributable here to the *loaded* or congestive state of vessels in the affected membrane. 3. Difficult respiration is a symptom of inflammation in the serous membrane of the thorax, probably because by the free expansion of the lungs the pleura is placed upon the stretch. 4. It is equally the result of deposition in the parenchymatous substance of the lungs, and is hence the most important of the early symptoms of tubercular phthisis.

After this enumeration of only a few of the sources of difficult breathing, it cannot surprise us that it should be so common a symptom of acute diseases. We may now observe the same effect resulting from causes of a more chronic kind.

4. Præternatural secretion from the glands of the bronchia, or from their secreting mucous surface, is sometimes habitual, and sometimes the result of accidental inflammation. In either case, it creates dyspnœa, which is felt most oppressively in the morning, and is only relieved by the labour of long coughing. 5. Permanent dyspnœa is the natural consequence of malformation of the thoracic parietes. 6. It is a common attendant on hydrothorax, organic

diseases of the heart, aneurism of the aorta, and other mechanical impediments to the free expansion of the lungs. 7. In certain cases dyspnœa is believed by many pathologists to arise from a much less obvious cause, *viz.* some irregular spasmodic action of the muscles concerned in the function of respiration. This we shall hereafter see to have given occasion to much controversy. A strong argument, however, in favour of the reality of such a cause of dyspnœa may be found in the circumstance of its being traced, 8thly, to the existence of disease within the head. A peculiar modification of difficult breathing is, as I have already stated, a distinguishing feature of apoplexy. It is presumable that in this case dyspnœa is owing to impaired function of the *par vagum*. Lastly, dyspnœa has its origin, in a large proportion of cases, from disturbance in the functions of the abdominal viscera. Sometimes, as in the case of flatulency or swelled liver, this may be imputed to the mechanical obstruction thereby offered to the descent of the *diaphragm*. In other instances, as in that of worms, the difficulty of breathing is referable only to the principle of nervous sympathy,—an explanation which is not to be discarded because less intelligible than some which have preceded it.

This brief and very imperfect sketch of the various causes of dyspnœa will probably be received as sufficient evidence of the obscurity in which the subject is enveloped. It results from it, 1. that difficult breathing is equally to be met with in acute

and chronic diseases; 2. that it arises partly from causes existing within, and partly from such as are exterior to the thorax; 3. that it admits of a division into the two great classes of *permanent* and *spasmodic*. Upon this latter distinction much stress has always been laid by nosologists. They have generally agreed in restricting the term *dyspnœa* to the cases of permanent difficulty of breathing, while to the spasmodic or recurrent varieties of disordered respiration, they apply the generic term *asthma*. In this sense, which may fairly be considered as the correct one, dyspnœa can only be viewed as a symptom, and as such cannot properly be treated of in this place. The case is different however with regard to *spasmodic asthma*. This affection of the breathing has long been regarded as *idiopathic*, and to the title it has unquestionable claims.

ASTHMA was well described by the Greek and Roman authors, and has always been a favourite topic of speculation among medical writers. The latest and by far the most complete account of the disease which has ever appeared is that of Dr. Bree *, to which I am chiefly indebted for the following outline of its symptoms, causes, and method of cure.

* Practical Inquiry into disordered Respiration, by Robert Bree, M. D. 5th Edition. London. 1815.

There is often some degree of warning given of the approach of an asthmatic paroxysm, not by thoracic symptoms, but by those of indigestion,—heart-burn, flatus, itching of the skin, pain over the eyes, and sleepiness. The attack most commonly occurs at night, and the patient is perhaps waked out of his sleep by it *. To those who experience or witness a paroxysm of asthma for the first time, it appears one of the most formidable diseases to which man is liable. The patient is oppressed by a tightness across the breast, which so impedes respiration as to threaten the immediate extinction of life. He starts up into an erect posture, and flies to the window for air. For a considerable time his breathing is performed by gasps, slowly and with a wheezing noise; speaking is difficult and even painful to him; there is often present also a propensity to coughing.

In this state of urgent distress the patient continues till the approach of morning, when a remission commonly takes place. However suddenly the fit began, it always goes off slowly. By degrees the breathing becomes less laborious, and coughing and speaking are performed with greater ease. In the generality of cases a copious expectoration of mucus at length takes place, and with it the paroxysm ceases, and the patient falls asleep. During the fit the pulse usually continues of the natural standard,

* The student will not fail to observe in this circumstance, an analogy between spasmodic asthma and epilepsy.

the surface of the body is pale, the muscles appear shrunk, and there is a considerable flow of limpid urine. In a few cases expectoration is very scanty. This, which in itself is an unimportant circumstance, was by the humoral pathologists advanced to a distinguished rank among the symptoms of the disease, and made the groundwork of its division into the two species of *dry* and *humid* asthma.

During the day following the asthmatic experiences some remaining sense of stricture across the breast, and any exertion of the body increases his uneasiness. At night the urgent difficulty of breathing returns, and in this manner he is harassed for three or four successive days, after which, the symptoms gradually yielding, he enjoys his usual rest without further disturbance. This terminates the paroxysm of asthma.

When it has once taken place, the disease is apt to recur periodically, and when the asthmatic disposition is very strong, to be brought on at all times by some of the circumstances which I shall presently enumerate. I have previously to observe that a degree of difficulty of breathing, particularly on ascending a hill or flight of steps, is never wanting during the intervals, and respiration is always attended more or less with *wheezing*, that is, with a morbid accumulation of mucus in the bronchial tubes. Persons subject to asthma acquire a peculiar expression of countenance easily recognised when once observed.

The consideration of the exciting causes of the asthmatic paroxysm constitutes the most important feature in the pathology of the disease. It may be preceded by a short notice of what little is known regarding predisposition. Asthma has some title to rank as an hereditary complaint; it is not confined to any particular age or sex; the period of youth and manhood is the most prone to it. It is sometimes connected with a deformed state of the chest. The asthmatic disposition commonly exists along with other marks of an *irritable* habit of body. This general principle pervades the whole pathology of asthma. It will be obvious in the strong tendency to dyspepsia which all asthmatics have; in the slightness of the cause which often induces a fit; in the great facility, lastly, with which the asthmatic convulsion, when once excited, runs into excess, and rivets itself in the constitution, recurring at last by the mere force of habit.

In ordinary cases the exciting causes of the paroxysm are sufficiently perceptible, and they exhibit the most singular varieties. Dr. Bree considers them as qualified by their importance to become the basis of a practical division of asthmatic cases, and he refuses to acknowledge any differences in the *phænomena* of the asthmatic paroxysm calculated to attain this object. From this we may learn to estimate the claims upon our attention which the *exciting causes* of asthma possess.

1. In the predisposed, an asthmatic paroxysm is frequently the result of particular states of the at-

mosphere, varying however in different cases. One man finds his breathing easy in the most crowded and smoky parts of London, and has a fit the moment he returns into the pure dry air of the country. Some asthmatics can go with impunity into a hot and crowded room, which others would shun as the sure prelude to a paroxysm. Some have their fits in summer, and others dread the approach of cold weather. An asthmatic is a perfect barometer. In a close room he knows when the weather changes, and confidently pronounces the wind in the east.

2. Various sorts of irritating matters conveyed to the lungs by the air, and occasioning, under common circumstances, a fit of sneezing, will in those predisposed to asthma bring on a paroxysm. Dust, perfumes, tobacco smoke, metallic fumes, and the vapours of sulphur, have had this effect in many cases.

3. Asthma is often occasioned by whatever quickens the motion of the blood generally, or determines it particularly to the lungs, such as severe exercise, loud speaking, exposure to cold, and suppressed evacuations.

4. A very frequent and important cause of the asthmatic paroxysm is a loaded, weakened, or otherwise disordered state of the stomach and bowels. This cannot surprise us when we reflect how generally dyspeptic persons, having no asthmatic diathesis, complain of difficult breathing, especially in the horizontal posture. The principle is of extensive application in the treatment of asthmatic affections.

5. Asthma is occasionally induced by causes which cannot be supposed to operate but through the medium of the nervous system generally. Of this kind are vehement emotions and passions of the mind, or the exertion of deep thought.

6. I have already had occasion to allude to the great law of convulsive motion, *viz.* that, whatever be its origin, the certain consequence of its repeated attacks will be that increased *mobility* of the whole frame which occasions a renewal of the diseased actions by the mere force of *habit*. This principle is particularly applicable to asthma, which fixes itself in the constitution with an inveteracy equalled only by that of epilepsy. Yet with all this, asthma cannot be considered as a disease of danger. No instance is perhaps on record of a fatal event occurring during the paroxysm; and though it assuredly in some cases, lays the foundation for other diseases (hydrothorax, and perhaps aneurism of the aorta), yet this can hardly be considered as a frequent consequence of it. Many confirmed asthmatics have accordingly attained a good old age. The gradual inroads however, which, when uncontrolled, it makes upon the constitution, embitter all the enjoyments of life, and should be sufficient to induce the patient to submit to any privations that may be necessary towards his cure.

Pathologists in all ages have exerted their ingenuity in determining, if possible, the precise seat of the asthmatic convulsion, and its true nature or

proximate cause. Much controversy has arisen on both these questions, and they are still involved in considerable obscurity. The bronchial tubes have usually been considered as the primary *seat* of asthma, but a difficulty has been experienced in reconciling the notion of spasmodic *contraction* with their peculiar anatomical structure, nor does this appear to have been hitherto overcome. In the exquisite form of the asthmatic paroxysm, every muscle that can assist in respiration is affected. The great question however upon which pathologists have divided, is, whether the spasmodic action existing in some one of the structures about the chest be the *cause* or the *consequence* of that superabundant mucus in the bronchial tubes, which all admit to constitute so material a part in the phænomena of the asthmatic paroxysm. Dr. Cullen (with other Hoffmannians) contends that it is the *cause*—that the spasm is the primary feature of the disease, and the effusion of mucus the natural relief of such diseased action. Dr. Bree, on the other hand, joins with the old humoral pathologists in maintaining that the convulsive efforts of the asthmatic are only *secondary* phænomena, being set up with the view of throwing off an excessive secretion from the mucous membrane of the bronchia.

Dr. Bree has undoubtedly argued the question with great ability, but the general laws applicable to secretion and convulsive action do not appear to me to bear him out in his conclusions; besides which, the occasional occurrence of asthma with

little or no secretion from the lungs, the very frequent circumstance of excessive accumulation there without any spasmodic action excited to disengage it, the phænomena of hooping cough, and the analogy of both asthma and hooping cough to epilepsy, tend still further to impress upon my mind the belief, that the first link in the chain of phænomena is convulsive action.

It must be confessed that the question before us is one of a purely speculative nature. Though I have ventured therefore to differ from Dr. Bree in his pathological opinions, I am not the less satisfied as to the merits of his practical suggestions. Of these I now proceed to lay before the reader a short abstract. The treatment of asthma naturally divides itself, like that of agues, into the two great heads of palliative and radical; or into that which is to be pursued during the fit, and in the interval. The relative importance of these was long misunderstood. Dr. Cullen distinctly says that asthma is seldom cured, though it admits of alleviation. Dr. Bree, on the other hand, has shown that the paroxysm of asthma is susceptible of but little relief, and that the main object of medical treatment is to prevent the recurrence of fits, and thus to effect a *permanent* cure of the disease.

1. During the paroxysm the indications of cure are to lessen the distention of the blood-vessels of the lungs, and to promote expectoration. It might

be supposed that the first object would at once be gained by the abstraction of blood, and the relief so commonly afforded by bleeding in most forms of thoracic disease gives countenance to such an expectation. But experience has shown that this evacuation scarcely ever shortens the paroxysm, while on the other hand it delays expectoration, aggravates the subsequent dyspnœa, and increases that debility which is the great obstacle to a speedy and ultimate cure. In place of blood-letting we are to relax the spasm, and unload the vessels by the combined influence of nauseant expectorants, acids, and narcotics.

Where the stomach is much loaded (as when the paroxysm occurs soon after a full meal), we may begin by directing a gentle emetic R No. 47. Under common circumstances it will however be sufficient to keep up a nauseant effect by the draught No. 48. If there be suspicion of acidity in the stomach, the draught No. 49 may be substituted. Sir John Floyer's specific in the asthmatic paroxysm was the vinegar of squills, and it is certainly a valuable medicine. The patient should be directed to take at intervals clear coffee, which as an article of diet is peculiarly well adapted to the stomach of an asthmatic. On the second or third day, when the tendency to secretion has increased, some anodyne may be added to the expectorant, and the effect of the whole is much aided by the gentle stimulus of an acid. The formulæ, Nos. 50 and 51, are con-

structed upon these principles. In the management of this disease the student will bear in mind that laxity of fibre, and morbid sensibility and irritability, are the predominant features of the asthmatic habit, and he will learn to avoid all violent medicines.

The same considerations might naturally induce him to expect advantage from the administration of *antispasmodics*, more especially ether and laudanum. Though serviceable in a few cases, this combination for the most part fails in imparting even temporary relief. Dr. Bree has convinced himself that such medicines are useful *only* when the disease has existed long, when the fit recurs from habit and sympathy, and when our object is merely to vary impressions. In this state, opium alone is often used, but its powers are much increased by combination with ether. The tact of experience can alone teach when the disease has assumed that *habitual* form, in which antispasmodics are indicated.

As the fit of asthma so frequently arises from disordered states of the stomach and bowels, the employment of laxatives during the paroxysm affords an obvious means of relief. In a few cases the action of a smart purgative carries off the fit; but in general, purging, where advisable, should be attempted by rhubarb, castor oil, and the absorbent earths. Dr. Bree has observed the excellent effects which result from the use of chalk and rhubarb. The cold bath has been recommended as

a powerful means of directly checking the asthmatic fit. Where the constitution is vigorous, it may occasionally be advisable to employ it.

2. In the intervals of the paroxysms, attention is principally to be paid to the careful avoiding of the several exciting causes of the disease. Attempts are to be made also to give tone to the capillary vessels of the lungs, and to promote the strength of the stomach and general system. To enter upon such a plan with any prospect of success, co-operation on the part of the patient is indispensable. His health is in a great measure in his own hands. Abstinence from what is hurtful rests alone with him, and this can never be compensated by the prescriptions of his physician. To *aid* the efforts of the asthmatic, preparations of iron, bitters, and the mineral acids, may be advised. A tea-spoonful of the carbonate of iron may be given three times a day, or the pills (R No. 51) as recommended by Dr. Bree.

Cold bathing, daily regular exercise, and, where possible, frequent changes of air, of scene, and of amusement, are of real importance. Above all things, attention is to be paid to the regulation of diet. Light and simple food is to be preferred, and always taken in moderation. With this precaution many confirmed asthmatics pass through life in comparative comfort. When the disease is inveterate, the only chance of permanent cure rests in a

complete change in all the habits of life. A splendid example of what may be effected by such a measure is recorded in Dr. Bree's work *; and our confidence in the plans of treatment which that author recommends cannot be misplaced, when we find him to have successfully practised what he so eloquently teaches.

* Inquiry into disordered Respiration, page 347.

CHAP. III.

HOOPING COUGH.

On Cough as a Symptom of thoracic Disease—Early Notices concerning Hooping Cough—Manner of its Invasion—Progress of the Disease—Prognosis—Modes by which it proves fatal—Propagation by specific Contagion—Nature of the Affection—Principles of Treatment—Remarks on the Administration of different Remedies—Influence of Change of Air.

COUGH and difficult breathing are the leading symptoms of thoracic disease, whether acute or chronic; but they occur in such very different forms, they are so infinitely diversified in their combinations with each other, and with other local and general symptoms of disease of the chest, in their periods of occurrence and duration, and in the degree of their violence, that no inconsiderable difficulty is experienced in forming a true estimate of their bearing in particular cases. This position I attempted to illustrate in the last chapter, when treating of dyspnœa. It again meets us in our inquiries concerning the nature and varieties of *chronic cough*.

The pathology of cough is much simpler than that of difficult breathing. It always depends upon some *irritation* acting on the mucous expansions of the lungs and air-passages. This may be either the continued presence of a mechanical or chemical stimulus (dust or vapours); or inflammation and its consequences; or, what approaches very near to it, the state of vascular congestion; or, lastly, it may be some poison circulating in the system, and possessing, from circumstances unknown to us, a peculiar disposition to affect the bronchial membrane. Cough, as arising from the first of these sources, is hardly an object of medical treatment: as it occurs in consequence of inflammation, or of any disturbed state of circulation allied to inflammation, it has been already discussed under the title of *subacute* and *chronic* bronchitis. It now remains that I consider chronic cough as it arises *idiopathically* from unknown, or at least very obscure causes. This singular variety of disease, prevailing chiefly among infants and children, is well known to the world under the title of *hooping cough*, and from nosologists it has received the name of *pertussis*.

Hooping cough is not described by any of the Greek, Roman, or Arabian authors. It is impossible to suppose that a disease so strongly marked as this, could have escaped the attention of the ancient physicians, had it then existed. We must presume, therefore, that it was not known in Europe before the thirteenth, or perhaps even the fourteenth century. It was first accurately described by Dr. Wil-

lis* in 1664. The most complete treatise on the disease which has since appeared is that of Dr. Watt of Glasgow†, in which the student will find a copious account of the opinions of the best authors.

The phænomena which hooping cough presents, as well in its origin as in its subsequent progress, may be thus briefly described. It begins with the common symptoms of catarrh, from which indeed it cannot be distinguished by any known criterion for the first week. It has been observed that the usual catarrhal symptoms are here accompanied with a more than ordinary disposition to sleep, and those which denote general fever are seldom very strongly marked. About the end of the second, or beginning of the third week, the symptoms undergo a remarkable change: the fever declines, and appetite returns; but the cough continues, and occurs in paroxysms of extraordinary violence. The child struggles for breath, and appears in danger of suffocation until relieved by the long and full inspiration known under the name of the *back draught*, or hoop. The fit of coughing continues for several minutes, and is commonly terminated by expectoration of mucus, sometimes by vomiting, and occasionally by bleeding at the nose, or an epileptic paroxysm. In very bad cases, even this is denied to the little patient, whose efforts end only with his complete exhaustion. It is

* *Pathologia Cerebri et nervosi Generis*, cap. 12.

† *Treatise on the Nature, History, and Treatment of Cough*, 1813.

distressing to witness the attempts made to expectorate. The child appears conscious of the relief which is thus afforded to him, and he continues coughing until expectoration is effected.

The fits vary much in frequency. In mild cases they do not occur more than three or four times a day. In severe ones, they harass the patient every half hour. It is very rare to find them recurring at regular intervals. They are often brought on by exertions of body, or emotions of mind. It is common, therefore, to find the child averse from moving or speaking. He is often aware of the approach of the fit, and lays hold of any thing near him for support. He finds relief by stooping forward, and by support given to the head and back.

When once the disease has assumed its regular form, the appetite is good, and this is strikingly displayed in the craving for food which comes on when the fit terminates by vomiting. The tongue is always *clean and moist*. There is no difficulty of breathing in the intervals of the fit. Permanent dyspnœa betokens something more than mere hooping cough,—probably an inflammatory condition of the bronchial membrane. The bowels are seldom affected. It is very common to find children with hooping cough complaining of a *tensive* pain of the forehead, and in severe cases this is obviously an *urgent* symptom, and one which demands attention in reference to practice.

The further progress and duration of hooping cough are subject to great variety. In its mildest form it generally lasts two or three months, and when severe, is often protracted to six or seven. Even after it has wholly ceased, or nearly so, the accidental exposure to cold has occasioned its return. Under the most favourable circumstances the decline of the disease is very gradual, and almost imperceptible. It happens, however, but too frequently, that the latter stages of the disease are attended with a formidable train of evils. In some cases a convulsion fit occurs in one of the paroxysms, and carries off the patient when the practitioner is least prepared for it. In other cases, from exposure to cold, pneumonic symptoms supervene, and the child either dies with his lungs gorged with blood, or the foundation is laid for a species of infantile phthisis*. In a third set of cases, hooping cough brings on genuine hydrocephalus, and the child dies in a state of coma. This might oftener be anticipated, when we reflect with what force the blood is driven upon the brain, and how much its return is retarded, during a severe fit of coughing. But of all the modes by which hooping cough proves fatal, the most common is that by *marasmus and infantile fever*. The child after a continuance of the disease for a certain time, from causes not well understood, loses his ap-

* The deaths by hooping cough recorded in the London bills of mortality are always very numerous, averaging not less than five hundred annually. In 1822 they amounted to seven hundred and fifty-seven, exceeding the deaths by small-pox.

petite, emaciates rapidly, becomes hectic, and dies, *apparently* from pure exhaustion*.

The danger is not proportioned to the age of the patient. A child of two or three *months* old will struggle through the complaint as well as another of two or three years. When it attacks weakly or scrofulous children, or those labouring under some other disease, it is apt to prove severe, tedious, and therefore dangerous. When hooping cough begins late in the spring, it is commonly milder than when its approach is towards the beginning of winter. It is always most destructive in cold climates, and in cold and damp seasons.

The appearances on dissection correspond with the views which have been given of the modes by which this disease proves fatal. Dr. Watt has described several cases in which there were found the clearest proofs of acute bronchial inflammation, conjoined with more or less *congestion* in the substance of the lungs. In some which have been recorded, serous effusion within the ventricles of the brain has been the predominant morbid appearance; while to myself and to many others it has occurred to witness numerous instances, in which, on examination, nothing preternatural has been observed in either of the three great cavities of the body.

* The pathology of this, and of the other varieties of *infantile hectic*, is very little known. An attempt will be made to investigate the subject in a subsequent chapter.

Hooping cough, though sometimes met with in adults, is for the most part the disease of early life. It is often epidemic. Few children escape it, but it rarely, if ever, is known to occur more than once in the course of life. From these and other facts which might be adduced, a reasonable presumption exists that it has its origin in a *specific contagion*, which like those of the influenza and measles has a direct determination to the membrane of the bronchia, though it is not, like them, essentially linked to fever. The contagion of hooping cough appears to be communicated with great facility. When once it gets entrance into a family, it generally attacks every child.

Different opinions have been entertained regarding the precise nature of hooping cough. It was originally considered as a spasmodic disease, allied in its more obvious features to asthma and chorea, but acknowledging also many of the laws of convulsive diseases generally. This simple and very satisfactory explanation of the pathology of hooping cough has latterly been called in question, and it has been confidently maintained that it is an affection of an inflammatory kind, closely allied to the ordinary varieties of bronchitis. In favour of this opinion it has been argued; 1. that common winter cough frequently shows a strong disposition to spasmodic exacerbation; 2. that all the more important *sequelæ* of hooping cough are of a decidedly inflammatory character; and, 3. that other inflammatory affections of the bronchial membrane (catarrh, and

cynanche maligna) are induced by the operation of a specific contagion. To these arguments it may be replied, that they point out a strong *tendency* in this disease to inflammation, which the practitioner will do well to keep constantly in view; but an impartial observer will not fail to appreciate those more numerous considerations which associate it with the class of spasmodic diseases.

If there is any single argument which might be relied on to justify this latter view of the character of hooping cough, it would be the infinite number of presumed *specifics* for the cure of the complaint. That all of them have been at times serviceable it would be in vain to deny, and the facts are reconcilable only with the notion of the disease being essentially of a spasmodic nature. The leading principles to be kept in view in the treatment of hooping cough are the following. It is a disease arising from a specific contagion, over which we have no direct control. Like small-pox or measles it has a tendency to run a certain course and to wear itself out. The violence of the paroxysms may sometimes be moderated by remedies which diminish irritability generally, and which prove useful in other spasmodic disorders. On the other hand it is to be remembered that hooping cough occurs at a period of life peculiarly favourable to the lighting up of fever, and to the engendering local determinations of blood. On this account a watchful eye must always be kept on the accom-

panying constitutional symptoms, and antiphlogistic measures adopted in proportion to their violence.

As to the alleged specifics in hooping cough, I need not do more than simply enumerate them. Their very number is a satisfactory proof that no single remedy is of much service. They are cantharides, paregoric elixir, assafoetida, castor, bark, cup-moss, musk natural and artificial, mezereon, nitre, arsenic, and prussic acid. Without detaining the reader by a detail of the relative merits of these drugs, I shall at once proceed to offer a few remarks on those means of more acknowledged power which have been sanctioned by long and general use; such as emetics, narcotics, expectorants, stimulant embrocations, laxatives, mercurial alteratives, local and general depletion, and change of air.

1. Emetics were probably first employed from its being observed that vomiting is one of the common terminations of the paroxysm, and that children who vomit, commonly pass through the disease easily. There is a great difference, however, between natural vomiting and that which is the result of an irritating medicine, more especially of tartar emetic, which has often been employed with this view. It will in fact be found in practice, that *frequent* emetics, from their tendency to weaken the stomach, are inadmissible; but from the *occasional* exhibition of a few grains of ipecacuan some benefit may reasonably be expected. 2. When the disease has subsisted for any length of time, the mild narcotics are decidedly

useful. Of these, conium is the best, and has indeed been very generally employed since Dr. Butter's strong recommendation of it*. The form in which I commonly administer it is that of R. No. 52. Other practitioners have found advantage from hyoscyamus, the lactuca virosa, the superacetate of lead, and opium. The formula No. 53 has proved exceedingly useful in many cases. Opium for the most part confines the bowels, and makes the child feverish.

3. Expecto- rant medicines of several kinds have been tried, and occasionally they have proved singularly beneficial. Dr. Richard Pearson † has spoken in high terms of the combined influence of an expecto- rant (the vinum ipecacuanhæ), with an anodyne and absorbent. He recommends the formula R. No. 54. 4. Stimulant embrocations enjoy a high reputation for the relief of whooping cough. The formulæ Nos. 55 and 56 may be tried with some prospect of advantage. They should be applied not only to the chest, but along the course of the spine, and the milder ones may be repeated frequently during the day.

5. An open state of the bowels is almost essential to the favourable progress of the disease. An occasional dose of rhubarb, in conjunction with an absorbent, is of decided advantage. Dr. R. Pearson has observed, that the slimy fluid brought up by vomiting has often a sour smell. 6. In the latter stages of whooping cough, where it becomes

* Treatise on the Kin-Cough.

† Medico-Chirurgical Transactions, vol. i. p. 23.

combined with symptoms of marasmus, I have derived great benefit from small alterative doses of calomel (a grain twice a day with a little sugar), and to this may be united very advantageously a few grains of scammony.

7. In all severe cases, when the cough is accompanied with permanent dyspnœa, much heat of skin, and other febrile symptoms, general or local blood-letting ought never to be omitted. It is frequently necessary to repeat the evacuation of blood two or three times before the symptoms begin to yield. When the child complains of much headache, it will be found very necessary to apply a few leeches to the head. It has even been observed that the severity of the *hoop* has been by this means diminished, and the acknowledged influence of certain states of the brain upon the respiratory organs may be adduced in explanation of the fact.

8. When the disease proves very tedious and obstinate, resisting all the common modes of relief, and exhausting the patient by its continuance, we may fairly presume that it has rooted itself in the system by the force of habit; and to break in upon this, change of air has long been found eminently beneficial. It is often the only thing that gives the patient a chance for life. But it must be remembered in what circumstances it is applicable, and should never be advised where symptoms of bronchial inflammation are present, and where a free exposure to cold air would, in all probability, be detrimental.

CHAP. IV.

CHRONIC AFFECTIONS OF THE HEART.

Sketch of the Objects of Investigation in this and the succeeding Chapter——Functional Disturbances of the Heart——Syncope——Its Causes——and Mode of Treatment——Palpitation——Its several Causes——Angina Pectoris——Literary Notices concerning this Affection——Its Symptoms and Progress——Morbid Appearances——Pathology——Treatment——Structural Diseases of the Heart and great Vessels——Enlarged Heart——Diseased Valves——Aneurism of the thoracic Aorta——Congenital Malformations——Symptoms occasioned by them——Morbus cæruleus.

THERE is no class of diseases which submit so difficultly to the trammels of nosological arrangement as the chronic affections of the heart. Their characters are so ill defined, so difficult is it to distinguish the idiopathic affections of this organ from those cases in which its functions are sympathetically disturbed, so *impossible* to anticipate with certainty by the symptoms the presence of structural disease there; in fine, so intimately are the functional disorders of the heart connected with those of the brain, that an attempt to arrange systematically this class of dis-

eases may be considered as almost hopeless. My object in bringing them together is merely to offer a few suggestions upon each, calculated to assist the student in determining the pathological character of particular symptoms, and to impress upon his attention those general views regarding chronic affections of the heart to which modern pathologists have principally attached importance.

I shall first treat of such as are commonly functional, and, comparatively speaking, of little danger, *viz.* syncope and palpitation; and afterwards advert to those in which disorganization of the heart or great vessels is *manifest*. The link uniting the two will be found in that singular affection known by the popular but unscientific name of angina pectoris. The obscure subject of asphyxia naturally connects itself with our inquiries concerning the morbid conditions of the heart; but its bearings are of so very general a kind, that it will be better to refer the consideration of it to a separate chapter.

Syncope or fainting consists, as is well known, in the temporary suspension of the functions of the heart, and consequently of every other function of the body. A dimness comes before the eyes; a deadly paleness overspreads the cheeks; the patient falls down; the pulse fails; respiration is at a stand; sensation and all mental phænomena cease. In some cases indeed, the patient, though incapable of speaking, retains enough of perception and sensation to be conscious of his own disorder, and of what is pass-

ing around him. The disease brings with it its own cure. The horizontal position to which it reduces the body quickly renews the supply of blood to the heart, and the fit of syncope is over. In a few cases, recovery is accompanied with a confusion of ideas, vertigo, and headache. Much more frequently it is described as being attended with very *painful* feelings. Fainting, viewed in the light of a *disease*, must always from its very nature terminate favourably. I shall have occasion indeed, in the next chapter, to speak of death by *syncope*, that is, of a sudden and *permanent* check given to the heart's action ; but to such a state, the term fainting, in its common acceptation, is obviously inapplicable.

Nosologists have attempted to distinguish different degrees of swooning, to which they have applied the terms leipothymia, leipopsychia, ecchisis, syncope, and apopsychia ; but there are certainly no real grounds in nature for any such distinctions. It may be considered, indeed, in a pathological point of view, as arising from two different sources,—imperfect supply of blood, and defect of nervous power : and in one or both of these ways it will be easy to understand the operation of the several predisposing and exciting causes of fainting, which systematic writers have enumerated.

A predisposition to fainting is given by original delicacy of organization. Hence it is so much more frequent among women than men. Weakness of constitution, the result of long illnesses, or of scanty

nourishment, may be viewed in the same light. In convalescents from typhoid fevers, the exertion of getting out of bed is often followed by a fit of syncope.

The most common exciting causes of a fainting fit in persons otherwise in good health, are violent and long-continued exertion, long continuance in the erect position, violent and protracted pain, excessive evacuations, whether of blood or by purging, external heat, the sudden operation of a depressing passion, and in very delicate habits of body, certain objects of dread and antipathy.

The treatment applicable to the state of syncope is very obvious and simple, and, excepting in the case of syncope from flooding, rarely, if ever, demands the exercise of professional skill. The horizontal posture, a free current of cold air, sprinkling a little cold water over the face, and hartshorn held to the nostrils, will be sufficient to re-excite the circulation in common cases. In those severe ones which are the consequence of excessive evacuations of blood, the most powerful stimulants are often required, and an unremitted perseverance in them can alone ensure the safety of the patient.

There are few sensations better known, and which create at the same time more uneasiness, than that to which the term PALPITATION is popularly applied; and it is not therefore surprising that pathologists should have directed so large a share of their

attention towards it. By some it has been advanced to the rank of an *idiopathic* affection, and considered in the light of a *convulsion*. By others, and certainly with more justice, it is viewed merely as a symptom, arising from various causes, sometimes quite unimportant, but sometimes indicating, in conjunction with other symptoms, disease in different parts. A few observations on the nature and sources of palpitation may be of some assistance to the student with a view to the diagnosis of disease, and the administration of remedies.

When the action of the heart becomes, from any cause, perceptible to the individual, he is said to have *palpitation*. Such irregular action may be either sharp and strong, when it is called *throbbing* of the heart; or it may be soft and feeble, when it is called a *fluttering*. The sensations of the patient are obviously to be ascribed to the rebound of the heart against the inside of the chest. With a view to practice, a distinction is to be drawn between *permanent* and *occasional* palpitation. The former is always, or nearly always, the result of organic disease existing within the chest, more especially of water accumulated in the cavities of the pleura or pericardium, ossified valves, pericarditis acute and chronic, and its consequences. The latter too may sometimes indicate structural derangement, but it is far more commonly the evidence merely of *sympathetic* disturbance in the action of the heart. To this variety of palpitation I confine my attention for the present.

Every one must be sensible of the influence of strong emotions and passions of the mind over the actions of the heart; and palpitation from these causes is very frequent. The notion entertained by Dr. Cullen that this arose from the rapid influx of nervous power into the muscular fibres of the heart, is too hypothetical to require discussion; but the *facts* now adduced are sufficient to explain why palpitation should occur, secondly, as a symptom of general disturbance in the whole system. It is frequently observed in persons of *irritable* habit, and is often connected with amenorrhœa, chlorosis, and hysteria, of which latter disease the *animus varius et mutabilis* constitutes so striking a feature. Palpitation is owing, thirdly, to preternatural increase in the velocity of the blood, as where it is brought on by violent exercise. It arises, fourthly, from sympathy of the heart with certain deranged conditions of the abdominal viscera, and consequently is a frequent symptom of dyspepsia and diseased liver. It is hardly consistent with sound pathology to attempt any more *precise* explanation of this phænomenon, than what the term *nervous sympathy* suggests.

The last proximate cause of palpitation to which I shall allude, is *weakness* of the heart's action. It seems to be a law of the human economy, that debility in the exercise of any function often produces temporary efforts at more vigorous exertion, and commonly in a convulsive manner. Hence it is that syncope and palpitation are so often associated together.

It is obviously impossible to afford any useful rules to the student for the treatment of palpitation. An affection arising from such various and even opposite causes, must be met (where any treatment is required) by measures adapted to the particular circumstances of each case.

To a disease exhibiting many uniform and characteristic symptoms, and usually considered as depending on some chronic derangement in the heart, either functional or structural, Dr. Heberden in 1768 gave the name of *ANGINA PECTORIS* *. Dr. Parry of Bath has treated of it fully, under the title of *syncope anginosa* †. In Dr. Cullen's nosology it has received no place, although it might readily have found one next to asthma, to which, in many of its characters, it bears a strong analogy. Modern writers have added but little to the observations of the distinguished author who first described this disease.

Angina pectoris consists of repeated paroxysms of violent pain or uneasiness about the chest, occurring principally when the patient is walking up hill,

* Transactions of the London College of Physicians, vol. ii. page 59. "Some Account of a Disorder of the Breast." By Dr. Heberden.

† Inquiry into the Symptoms and Causes of the *Syncope anginosa*. 1799.

or soon after eating. The feeling of pain is so acute as to make him instantly stand still, and even to give the apprehension of immediate death; it is referred to the sternum a little inclined to the left side; from this point it shoots across the breast to the left arm, and appears to terminate at the elbow. In some cases it shoots to the right breast, and passes down the right arm in a similar manner. At first the paroxysms do not last more than a few minutes, and occur only at long intervals. Gradually they lengthen, and recur too with increased frequency; being brought on, not only when the patient is walking, but when sitting or lying down, and by the slightest bodily exertions, or even anxiety of mind. The duration of the paroxysm has been, in some very severe cases, protracted to half an hour or more, the face and extremities becoming pale and bathed in a cold sweat, and the patient, for a while perhaps, deprived of the power of sense and voluntary motion.

The character of the pulse during the fit is apparently subject to considerable variety. Dr. Herberden found it sometimes, though far from uniformly affected. Dr. Fothergill reports, that in his cases it was commonly intermitting or irregular. There is always some difficulty of breathing, or at least a distressing sense of *suffocation*, present at the same time, and in the advanced periods of the disease the stomach becomes unusually irritable. Angina pectoris has been known to last for many years; yet the prognosis is very unfavourable. In the larger proportion of cases it proves fatal *suddenly*,

from causes which will soon come under consideration. The diagnosis has often been looked upon as a matter of considerable difficulty, but I think without sufficient reason. Angina pectoris derives its character from symptoms present during life, and not from any appearances found after death; and if the former are observed, the disease is at once entitled to such a denomination.

It has indeed been attempted by some pathologists to attach the peculiar symptoms of angina pectoris to an ossified state of the coronary vessels of the heart, but this is taking too confined a view of the subject. More enlarged experience will show, that this state of disease is connected with several kinds of structural derangement within the thorax, though certainly this is the most frequent of them all; but to prove that the restricted notions of the disease entertained by Dr. Parry and others are not correct, it is sufficient to state, that in many cases (and very remarkably in that described by Mr. H. Watson *) a most extensive ossification of the coronary arteries existed without giving rise to a single symptom of thoracic disease. Dr. Latham, in an interesting communication to the London College of Physicians †, has described two cases of enlarged liver, in which all the genuine symptoms of angina pectoris were observed. Both patients died suddenly.

* Medical Communications, vol. i. p. 234.

† College Transactions, vol. iv. p. 278. "Observations on the Angina Pectoris notha."

This disease, lastly, has proved fatal where the most accurate anatomists have failed in detecting any morbid alteration of structure; and upon the whole, therefore, we must conclude, that angina pectoris is, in strict pathology, a chronic functional derangement of the thoracic organs, frequently associated with, but not directly depending upon, disorganization of the heart.

The objects of medical treatment in this affection are limited to affording some degree of relief while the paroxysm is actually present, and to the avoiding as far as possible all those circumstances which occasion its renewal. With a view to immediate relief we have recourse to a small blood-letting, carminative draughts, and opiates. The more important object of preventing the gradual inroads of the disease upon the constitution, is to be attempted by strict attention to diet and regimen, the regular use of aromatic laxatives, and the insertion of an issue or seton. All practitioners agree in the benefit which is derived from using the lightest and most digestible food, with perfect abstinence from fermented and spirituous liquors. Even in the latter periods of a protracted paroxysm, when the prostration of strength appears extreme, we are to hesitate in giving wine and cordials. The heart is here oppressed, not weakened.

Any thing that hurries the circulation is sufficient to bring on a paroxysm. The patient should therefore be cautioned to keep his mind quiet, and to

refrain from all severe exercise. Flatus in the stomach and a torpid state of the bowels are so commonly found accompanying this disease, and either inducing or aggravating paroxysms of it, that the practitioner will do well to obviate, by the use of aromatics, bitters, and laxatives, any irregularity in the action of the chylopoietic viscera, which he may observe. Where sleep is interrupted, he may with propriety exhibit some narcotic—the extract of hyoscyamus for instance, or opium. Dr. Heberden says that he has known opiates given at night, in many instances, prevent the accession of a paroxysm.

The symptoms occasioned by the several kinds of *structural* disease of the heart and great vessels, have been closely investigated by modern pathologists. Inquiries however have rather tended to show that they are obscure, than to establish their uniformity; and as the whole subject is one of curiosity more than of practical interest, I shall be very brief in my notices concerning it.

1. The simplest, and one of the most frequent structural derangements of the heart is dilatation, either general or partial, of its cavities. This sometimes takes place without any increase in the muscular parietes of that organ. At other times the heart is enlarged by an addition of solid substance, cellular and muscular; its cavities remaining little,

if at all, more capacious than usual. The symptoms vary according to the *nature* of the enlargement which the heart undergoes. Simple dilatation of its cavities is attended with a sense of oppression about the chest, a full, slow, soft, or sometimes even an *imperceptible* pulse. Persons have lived in this state for many years. The disease goes on, in almost all cases, to produce dropsy, and most remarkably dropsy of the pericardium, and consequently urgent dyspnœa. In some instances chronic inflammation of the pericardium supervenes a short time before death, when the character of the symptoms very essentially changes. Nothing is known regarding the causes of simple dilatation of the heart. It has been observed in young persons, without any disease of the valves, or other mechanical impediment to the transmission of blood.

2. Where the heart is enlarged by increase of its muscular parietes, the symptoms are nearly the same with those formerly described (Vol. I. page 275) as attending chronic inflammation of the pericardium. There is a *constant* sense of struggling in the thorax, with inexpressible anxiety referred to the heart. The pulse is quick, hard, and *jarring*, and when the hand is applied to the chest, the stroke of the heart seems restrained, and is succeeded by a kind of *thrilling*. Such cases are truly deplorable, and much more formidable than those of simple dilatation. The bodily strength becomes rapidly exhausted, the faculties of the mind are overpowered, and the patient is debarred from every

source of enjoyment. Dropsy commonly supervenes in this as in the former case*. The solid enlargement of the heart is believed to be always dependent upon some mechanical impediment to the free transmission of the blood, and is therefore often found united to a diseased state of the valves. This suggests the pathological principle (warranted certainly in many cases), that in proportion to the resistance offered to the passage of the blood, the circulating powers have their strength augmented.

3. Much importance has always been attached by pathologists to the changes of structure which the valves of the heart and large arteries so frequently undergo, and to the symptoms thereby occasioned. That in many cases diseased valves are the direct cause of various marks of obstructed circulation there can be no doubt, but it is not to be forgotten that they are often found where no symptoms had led to the suspicion of them. It is, I believe, quite impossible to ascertain with any degree of precision during life the existence of diseased valves, as separate from every other variety of disorganization of the heart. Still more hopeless is any attempt to determine what valve or set of valves are affected. The general symptoms of obstructed circulation by which we are led to form a plausible conjecture as to the

* Consult Mr. Allan Burns's "Observations on some of the most frequent and important Diseases of the Heart." Edinburgh, 1809. To this work I am indebted for the attempt now made to establish the diagnosis between *active* and *passive* enlargement of the heart, but I think it right to add that it cannot be relied upon in all cases.

existence of ossified valves, are, according to Dr. Baillie*, frequent palpitations, a difficulty of breathing, a weak and often irregular pulse, and in some cases a disposition to fainting. To these symptoms other authors have added, and I believe justly, hæmorrhage from the lungs, and dropsy.

4. Aneurism of the thoracic aorta is a frequent and most distressing state of disease. It can never be distinguished with any degree of certainty until it has attained to such a size that a tumour begins to be formed externally, accompanied with a strong pulsation. Dr. Baillie cautions us against supposing that strong pulsation in the chest indicates necessarily the formation of aneurism. It is generally attended with more or less of pain in the aneurismal tumour, shooting to the arm of the same side; and in proportion to the advances of the disease, the breathing becomes disturbed. It sometimes proves fatal *suddenly* by the bursting of the sac, but in many cases the patient is destroyed more gradually by interruption to the respiration.

The unpleasant symptoms occasioned by aneurism of the aorta admit of very essential relief, and perhaps even the growth of the tumour is sometimes checked, by medicine. Repeated leeches to the chest have proved serviceable in many cases, and the application of cold to the tumour has been occasionally productive of advantage. Digitalis unquestionably possesses a very considerable power in moderating

* Morbid Anatomy, p. 49.

the urgent symptoms, and if to the occasional employment of this drug is added a strict attention to diet and regimen, the patient may often pass the remainder of his days with tolerable ease.

5. Congenital malformations of the heart and large blood-vessels are of various kinds, and they have been ably described by Dr. Farre*, to whose work I beg to refer for the anatomical peculiarities of the several cases. They all agree in one result,—the intermixture of venous with arterial blood throughout the body. It is certainly a curious fact, that life should be compatible with such a state of the circulating system; yet it is so; and persons have been known to live for many years with it, and even ultimately to die of a disease unconnected with such a deviation from ordinary structure†. The great source of mischief and danger, as Dr. Farre has pointed out, is not the mere mingling of black and red blood, but the *difficulty* with which the circulation is generally carried on by a malformed heart. This is connected, in many cases, with the comparatively small size of the pulmonary artery, the consequence of which is, that the *full* proportion of blood is not circulated through the lungs.

The principal symptom of malformed heart is a permanent blue colour of the skin; from which circumstance the term *blue disease* has commonly been

* Pathological Researches by J. R. Farre, M. D. Essay I. on Malformations of the human Heart. London, 1814.

† See Medico-Chirurgical Transactions, vol. xi. p. 296.

applied to these cases. The other symptoms to which it gives rise are general weakness of the whole frame, permanent or spasmodic dyspnœa, palpitation, an irregular, weak, or intermittent pulse, and in some cases coldness of the skin, and emaciation. Persons who have malformed hearts are liable to hæmorrhages, dropsical effusions, attacks of syncope or of epilepsy, and occasionally to the unequivocal symptoms of oppressed brain.

CHAP. V.

ASPHYXIA.

*Extent and Obscurity of the Doctrines connected with Asphyxia
——Their Application to the Phænomena of Disease——
Animal and organic Life——Of the several Modes of
Death——Sudden Death, beginning at the Lungs——at
the Brain——at the Heart——Exemplified in the Cases
of Drowning, Hanging, the narcotic Poisons, irrespirable
Gases, Cold——Death by a more general Effect upon
the System, instanced in the case of Arsenic and Lightning
——Of the immediate Causes of Death in acute and
chronic Diseases——Treatment of Cases of suspended Ani-
mation——Effects and Application of artificial Respiration.*

THE term asphyxia (literally signifying want of pulse) has commonly been appropriated to those cases in which animation is for a time suspended, from some violent cause impeding respiration, such as strangulation, drowning, or exposure to mephitic gases; but in the present instance I propose to employ it in a much more extended sense. My intention is to include under this head, all those investigations which are connected with sudden death, from whatever cause arising, and without reference

to the possibility of subsequent reanimation. Asphyxia, in this acceptation, opens a most extensive field of curious investigation, which on many accounts deserves the attention of the physician. Setting aside the importance of the *pathological* doctrines which it directly embraces, or to which it more distantly refers, it is interesting as being one of the most frequent subjects on which judicial examinations of medical men are required. It is no less important as connecting itself very intimately with the more familiar objects of medical inquiry. Asphyxia cannot be considered as a disease, but it is a state nearly allied to it, in which the sources of life and health are suddenly and violently invaded; the different kinds of sudden death being merely the simplest cases and the best illustrations of those terminations of disease, which it is the object of the art of medicine to avert *.

It is hardly necessary to enumerate the many difficulties with which the subject of asphyxia is surrounded. From the remarks already offered, it must be seen to involve a number of the most abstruse questions both in physiology and pathology. To such inherent difficulties is doubtless to be attributed the neglect which asphyxia has experienced from the systematic writers of former times. Bichat, in his *Essay on Life and Death*, first placed the inquiry upon a scientific basis; but much still

* For much assistance in the composition of this chapter, I beg to express my obligations to Dr. Alison, Professor of the Theory of Physic in the University of Edinburgh.

remains to be done with regard to it, and that, without overstepping those boundaries which physical science ought always to prescribe to itself, in investigating the phænomena of life. Conscious of the difficulties, but aware of the importance of the subject, my endeavour will be to lay before the student such an *elementary* view of the leading principles which it embraces, as may enable him to appreciate more fully its bearings, and to prosecute the inquiry hereafter with a more definite understanding of its objects. The principal points to which my attention will be directed, are the causes of death from hanging, drowning, mephitic gases, lightning, and poisons; the causes of sudden death which are independent of external agency; the causes of death in acute and chronic diseases generally; and the means of restoring suspended animation.

The foundation of almost all reasonings concerning asphyxia, is laid in the mutual relations and connexions of the three great organs of the body, the heart, the lungs, and the brain; and the consequent division of the phænomena of the living system, into those of *organic* and *animal* life*. It will be sufficient for me here to remind the student, that the heart and arteries are the basis of all the operations of vitality, and the grand source therefore of *organic* life. Foetuses have been born without a brain, but never without an arterial system.

* This great principle in physiology was partially known to some of the older authors, but was first fully developed by Bichat.

Next to circulation, the most important function in the body is respiration, because by it the *arterialization* of the blood is effected. The third in the series is the brain and nervous system, the origin of *animal* life, and necessary to respiration, inasmuch as that function is carried on by means of *sensations*, which in all cases depend upon a peculiar condition of the brain and nerves. Respiration therefore is the link uniting the phænomena of organic and animal life.

All sudden deaths are of one or other of the following kinds: 1. Death beginning at the lungs; 2. Death beginning at the brain; 3. Death beginning at the heart; 4. The simultaneous destruction of animal and organic life. The two first may be considered as modifications of each other, and as they are the most usual modes by which death is effected, whether suddenly or in the progress of disease, they well merit a priority of discussion.

1. An accurate observation of nature will show that in many kinds of death (well exemplified in that by suffocation) two distinct stages are perceptible. In the first, sensations, thought, and voluntary motions are destroyed. In the second, circulation and the organic functions cease. In common language, the term *life* is annexed to the presence of mental phænomena, and death to their absence. In a strictly physical sense, however, the body is said to be alive, so long as actions are going on in it, differing from any which chemical and mechanical principles can explain. In considering

therefore the order in which the functions cease, we do not stop when we come to the cessation of all indications of mind, but we pursue the changes as long as any movements take place in the body inexplicable by such laws. In other words, the body is not pathologically considered as *dead*, until *organic* as well as *animal* life has ceased.

Many theories have been proposed to explain the mode by which *suffocation* proves fatal, and some of them obtained credit from their apparent simplicity. We are indebted to Bichat, however, for proving that the changes in *pure asphyxia* are more complicated than had generally been supposed. He distinctly ascertained that the heart continues to act *after* respiration has ceased; that the left ventricle propels venous blood to all parts of the body; that when a very few waves of unarterialized blood have circulated through the brain, insensibility takes place, and animal life ceases; and, lastly, that the penetration of venous blood gradually destroys the action of the heart itself, and of every other contractile part through which it circulates. Death by pure asphyxia, therefore, is attributable to venous blood acting as a poison, first, upon the nervous, and secondly, upon the muscular textures of the body. Here animal life (with which suffering is connected) ceases before organic life, and doubtless this is a benevolent provision of nature.

That this is a correct description of the order in which the functions cease in asphyxia, will be rendered apparent by the following considerations.

In animals which have been made the subject of experiment, the heart has been seen contracting after the diaphragm has ceased to move. Dark-coloured blood is found in the left side of the heart and in the great arteries. The large veins on the *right* side of the heart are always the most full of blood. The skin and different other organs assume speedily a livid colour.

The principle in pathology now adverted to, admits of a further illustration from what happens in a few cases of drowning, and more frequently after exposure to carbonic acid gas. The action of the heart is renewed, but insensibility continues, and the patient, after remaining in a perfectly apoplectic state for some hours, dies. In some instances, the comatose symptoms have subsided, and life has been preserved. It is fairly presumable that in cases of this kind the quantity of venous blood which had circulated through the brain, had been sufficient to injure seriously, though not totally to destroy, the functions of the brain.

The sort of death that I have now described as beginning at the lungs, takes place not only in hanging and drowning, but by cutting the spinal cord in the upper part of the neck, whereby the muscles of respiration are paralysed, and by confining an animal in vacuo, or in a simple irrespirable gas.

2. Death beginning at the brain is closely allied to that which has been just explained. In this

instance the functions of the brain cease first, sensibility, thought, and voluntary motion. Respiration, which is an action dependent upon sensibility, fails next. The blood not being arterialized, the functions of the heart cease as in the former case. The only difference between death beginning at the brain, and that by suffocation, is, that the circulation of black blood through the arteries is in the present instance the effect, and in the other the cause of the cessation of animal life. This at least is one mode by which death takes place from causes operating immediately on the brain. I shall, hereafter, have occasion to point out that it is not, as Bichat imagined, the only one. It remains to state, that the first link in the chain of phænomena, the cessation of animal life, is not always *instant* and *complete*. Respiration, performed, it is true, slowly and with difficulty, sometimes continues after voluntary motion, and all other marks of sensibility, have ceased. This constitutes, as the student will at once anticipate, the state of coma or apoplexy.

Instances of *sudden* death, beginning at the brain, occur in the case of severe injuries to the head, epileptic fits ushering in the attack of small-pox, poisoning by opium, woorara, and the greater number of the narcotic poisons.

3. Sudden death beginning at the heart opens a field of inquiry not less interesting than that which has already engaged our attention. Here the

order in which the functions terminate is reversed. The pulsations of the heart are first stopped, and as the brain ceases to be excited by the stimulus of blood, sensation and voluntary motion and the mental phænomena gradually fail, and with them respiration and the contractile power of moving parts. In this case breathing is the latest act of life, and therefore here only can an animal, in strict pathological language, be said to *expire*.

There is an important principle in pathology involved in this consideration; *viz.* that the mere cutting off the supply of arterial blood is not so detrimental to the brain, nor so speedily and certainly fatal, as the penetration of its substance by venous blood. This is the reason why fainting is so generally recovered from, even though sensation and thought be there as completely at a stand as in the case of a drowned man.

On opening the bodies of animals who are killed by some poison acting directly on the heart, *scarlet* blood is found in the left side of that organ, and the heart and large arteries appear turgid. The skin does not become livid with the same rapidity as in death by suffocation. Very often no perceptible change in the body takes place for many days. In most of these cases the blood is found *uncoagulated*, a phænomenon not yet satisfactorily explained.

Sudden death beginning at the heart occurs from the action of certain *poisons*, as the upas antiar, and

tobacco, in particular diseases affecting the heart, as angina pectoris, apparently in some cases from a *paralytic* state of the heart, and lastly, from extreme cold. It is well known that animals exposed to a certain degree of cold, perish. There is some doubt, however, as to the precise mode by which it destroys life. Some imagine that it operates by *coma*, and others that it enfeebles, and ultimately checks altogether, the contractile power of the heart. In either case it merits great attention from the practitioner, being frequently associated as the cause of death with simple suffocation.

4. It might be imagined that excessive hæmorrhage proves fatal by its suddenly checking the heart's action. But it has been shown that the heart continues to contract after all supply of blood to it is cut off, and hæmorrhage therefore is the cause of death by a very obvious but more general effect upon the *whole* system. It is not indeed to be supposed that all cases of sudden death can be classed under one or other of the heads to which I have now adverted. Such a contracted view of the subject of asphyxia might tend rather to embarrass than to assist the inquiries of the student. He must be aware that there are, fourthly, cases of sudden death in which all the powers of vitality are at once destroyed, or at least in which the functions of animal and organic life are so equally impaired, that it is impossible to ascertain the order of their cessation. Such cases are far from being rare. The most familiar instance which can be given of them is that of

poisoning by *arsenic*. The same principle is exemplified where death takes place from lightning, and exposure to the vapours of sulphur ; and lastly, it is occasionally instanced in certain violent impressions made on the brain and spinal marrow, where death both of the heart and brain ensues instantaneously, without the intervention of the respiration.

Such are the modes by which the different kinds of sudden death are brought about ; and the deviations from these, in the case of death from acute and chronic diseases, are not so great as might at first be imagined. If attention is paid to the series of symptoms that mark the close of life, different sets of phænomena will present themselves. In one instance *dyspnœa* will be first observed, followed by delirium and coma. As this becomes gradually more and more intense, respiration proportionably labours, and at length stops altogether ; the extremities grow cold, and the heart ceases to beat. This is plainly death beginning at the lungs. It takes place in almost all diseases affecting the lungs primarily (most obviously in hydrothorax, vomica, and consumption), and in many of those which affect the lungs secondarily, such as fever, small-pox, and measles.

In another instance *coma* occurs first, and the pulse often continues firm and unaltered in its character, and the extremities are warm up to the period when respiration ceases, and when, in the common

acceptation of the term, life is at a close. This mode of death (by coma) is witnessed in common cases of apoplexy, in hydrocephalus, phrenitis, and fevers complicated with local determination to the head.

The attentive observer will lastly have occasion to notice many cases where the first symptoms of approaching death are *feebleness of the pulse*, and *cold extremities*, respiration being still free, and the functions of the brain unimpaired. In such cases it is not uncommon to find the mind perfectly clear even up to the last breath which the patient draws. It is unnecessary to say, that this is death beginning at the heart, in which no admixture of unarterialized blood overpowers the operations of the nervous system. Such a mode of death is often observed in those who labour under peritonæal inflammation affecting a *large surface* of the membrane, in very extensive and violent injuries inflicted upon any part of the body, in severe burns, in ileus, and I believe also in tetanus and hydrophobia. In all these cases, the heart appears to be affected *sympathetically*. This is one of the modes too, by which confluent small-pox proves fatal. We are, lastly, indebted to Mr. Chevalier for pointing out to us another occasion in which this mode of death takes place. It is where a woman dies soon after child-birth, especially of twins, without any great degree of hæmorrhage. Here the heart and whole system languish under the efforts of parturition. The blood is detained in the capillaries, and the heart ceases to contract from *exhaustion*.

The only case of disease which occurs to me as illustrating the contemporaneous destruction of the brain and heart is that of gangrene, which, like lightning, or arsenic, appears to overpower equally every part of the animal œconomy.

The last topic to which I proposed to advert was the treatment of genuine asphyxia. Animation is here considered to be only *suspended*, and from very early times a notion has prevailed that in such cases the powers of medicine might be signally displayed in the resuscitation of life. It must be obvious, however, to the student, that much caution is here required. While the doctrines connected with asphyxia are involved in such obscurity, it is impossible to suppose that our practice can, or ought to be, regulated by the conjectures of persons, who, whatever be their claims to humanity, have none to physiological knowledge. In cases of such imminent danger as those of asphyxia, a measure not founded upon a thorough acquaintance with the subject may very probably add materially to the danger of the patient, check those ill-understood efforts of nature from which alone real benefit could have been derived, and thus tend only to *extinguish* the glimmering flame of life. When we find blood-letting, cold affusion, and the warm bath, tobacco glysters, galvanism, and artificial respiration, recommended without discrimination in the treatment of asphyxia, it is obvious that no just understanding can exist of the nature of those changes which are taking place in the body, nor of the operation of each remedy. In

the few remarks which I have now to offer on the management of persons in the state of asphyxia, I shall be careful not to exceed those limits which the present state of physiological science prescribes.

The first question that naturally occurs is,—for how long a time may breathing be impeded, and the body remain susceptible of reanimation? Instances are recorded of the recovery of persons after being half an hour under water; but in a scientific investigation no credit can be given to such statements. It is confidently stated that even the most experienced divers of Ceylon cannot remain under water an entire minute; and it is therefore a reasonable supposition, that if respiration has ceased during four, or at furthest five minutes, life is irrecoverably lost*. It is probable that something depends on the *temperature* of the water. An animal immersed in a freezing mixture, but with the respiratory organs free, speedily dies. This suggests the important practical inference, that during the state of asphyxia the body is to be kept in a warm atmosphere: and here we may observe how closely the dictates of science correspond with those of common humanity.

The application of artificial respiration in cases of pure asphyxia, holds out, in every point of view, a reasonable prospect of success; and that it has been effectual in restoring suspended animation, numerous

* Dr. Davy informs me that he has not been able to recover dogs that have been under water *two* minutes, even by means of artificial respiration and galvanism immediately employed.

observations concur to assure us. Bichat maintained, but apparently on theoretical grounds only, that this operation can never restore circulation that has once ceased; in other words, that it is effectual only in those instances where the heart still pulsates, though carrying on a circulation of venous blood. According to the statement of persons worthy of credit, however, the action of this organ has been renewed by artificial respiration after all marks of it had *wholly* ceased; and here it is probable that the left side of the heart, which could no longer be excited to contraction by venous blood, was stimulated by blood which had become arterial during this process. Mr. Brodie has shown that it will support circulation for many hours in small animals, even after the complete destruction of animal life by cutting off the head. We should thus be encouraged to persevere in its employment so long as any marks of pulsation in the heart remain, under the hope that the brain may gradually be restored from that state of *oppression* into which it was thrown by the influx of venous blood. Artificial respiration, therefore, appears well adapted to those cases of apoplexy succeeding asphyxia, to which I formerly referred. Reasoning from these principles, Mr. Brodie has conjectured that artificial respiration might be successfully applied in the case of animation suspended by opium, woorara, and such other narcotic poisons as operate first upon the brain, and through it upon the respiration. Some experiments recorded in the Phil. Trans. for 1812, give countenance to this expectation.

From the preceding remarks it will be obvious that artificial respiration is wholly inapplicable to those numerous instances of sudden death which *begin at the heart*. Scarlet blood is here already present in its left cavities, and means of relief for such cases, if any exist, must be sought for elsewhere. In the same manner it will not be difficult to convince the student how great is the danger which attends an indiscriminate employment of tobacco glysters and cold affusion. These have a direct power in checking the heart's action, and must, in a great majority of cases of asphyxia, be positively injurious. Galvanism holds out a better prospect of advantage; but the experiments hitherto made with the view of determining the kind and degree of influence which it possesses, are not sufficiently accurate to induce me to hazard any decided opinion of its value.

CLASS III.

CHRONIC DISEASES OF THE CHYLO- POIETIC VISCERA.

CHAP. I.

DYSPEPSIA.

Frequency of dyspeptic Complaints—Symptoms of Dyspepsia—Physiological Considerations connected with Digestion—Dyspepsia, primary and secondary—Exciting Causes of primary Dyspepsia—Sympathies of the Stomach—Varieties of secondary Dyspepsia—Prognosis—Principles of Treatment—Diet, Regimen, and Medicines—Other morbid Affections of the Stomach—Spasm—A State of continued Vomiting—Scirrhus Pylorus.

INDIGESTION is certainly the most frequent of all diseases. It is met with in every country, in every class of society, in every season of the year. Devoid of the danger which attends other diseases, it is nevertheless equally distressing to the patient, poisoning all the sources of his enjoyment, and leading,

in many instances, to the miseries of confirmed hypochondriasis. Long as it has been made the subject of inquiry by medical authors, it remains involved in much obscurity. The pathology of the disease is little understood; the method of its treatment is still imperfectly known; and the most remarkable diversities of opinion are entertained regarding the extent to which it influences the production of other disorders. On these various accounts, indigestion may justly lay claim to a full and accurate investigation.

By dyspepsia, in its most precise sense, physicians understand that state of the stomach in which its functions are disturbed without the presence of any other disease. In practice, however, it will be found impossible to restrict the meaning of the term within such narrow limits. The stomach being one of the great centres of the system, its functions are more or less disturbed in every disorder to which the human body is subject; and thus to confine the acceptation of dyspepsia, would be to presuppose our knowledge of the diagnostic features of many very obscure forms of disease. It will be sufficient, therefore, to limit the term dyspepsia to those cases in which the functions of the stomach are impaired, without the presence of well-marked general fever, of local inflammation in the organ itself, or of any very obvious *cognizable* disease in a distant part. So far from indulging a too strict adherence to nosological accuracy, it will be advisable to acknowledge a distinction

between *primary* and *secondary* dyspepsia. In the latter case the dyspeptic symptoms, though in reality secondary, yet often occupy the first place in the mind of the patient, those of the distant organ being either very obscure, or but little troublesome, or manifesting themselves only in the *progress* of the disorder.

The symptoms of dyspepsia are extremely diversified. They may be divided into such as are referable to the stomach itself, or to its sympathies with other parts of the body. Among the first may be enumerated loss of appetite, nausea, pain in the epigastrium or hypochondria, heartburn, a sense of fulness, distention, or weight in the stomach, a feeling as if a ball was lodged in the œsophagus, acid or fœtid eructations, pyrosis, or the vomiting of a clear liquor, often in vast quantity, and lastly, a sensation of *sinking* or fluttering at the pit of the stomach. To the second head of dyspeptic symptoms may be referred, among many others, costiveness, or an irregular state of the bowels, with a morbid appearance of the evacuations, pain of the back and turbid urine, a disagreeable taste in the mouth, especially on first waking, toothache,—palpitation, pulsation in the epigastrium, irregularity of the pulse, a short dry cough, and occasional difficulty of breathing,—giddiness, and headache, sometimes referred to the fore, but more commonly to the back part of the head,—languor, lassitude, and great depression of spirits, with fear of death, or of impending evil.

The tongue is very generally referred to as affording evidence of the state of the stomach; but it will often be found that the tongue is perfectly clean when the stomach is most incontestably disordered. It would seem indeed as if the morbid appearances of the tongue (its fur, dryness, præternatural redness, and smoothness, and its chopped aspect) are referable to the state of the constitution rather than to any particular derangement in the stomach. When, however, we observe the tongue *furred and moist* (its true character in common dyspepsia), that is to say, when the secretions of the mouth are depraved, we may reasonably presume that there exists a similarly disordered state of the *secretions* of the stomach.

In adults, dyspepsia frequently leads to a state of ephemeral feverishness. In infants this is very commonly observed, and it often increases to a state of high and formidable excitement. Very anomalous pains sometimes arise from simple dyspepsia, but these it will be unnecessary to specify.

In order to form a just idea of the connexion of these various symptoms with a disordered state of the functions of the stomach,—to illustrate the modes in which the several exciting causes of the disease, hereafter to be mentioned, operate,—still more with the view of explaining how dyspepsia becomes so frequently a concomitant or cause of local disease in a distant part, we must advert to a few facts connected with the physiology of the stomach.

There appear to be three important stages in the process of digestion. The first of these is an intimate mixture of the food with certain *fluids* of the body, particularly the saliva, and secretions of the stomach. It is probable that these have a higher office than merely lubricating the coats of the first passages, and moistening the morsel of food; but physiologists are not agreed as to their exact operation. The notion of a *chemical* solution of the food in the gastric juice, is still entertained by some, but it is at variance with the results of chemical analysis. It is not unreasonable to believe, that the animal fluids act to a certain degree as *ferments*, approximating the food taken in, to their own nature, by means peculiar to the operations of life, and only indirectly to be guessed at by some observed chemical phenomena.

The second important step in the function of digestion is the detention of the food for a certain length of time in the cavity of the stomach. In this stage of the process the food is brought by degrees into contact with its coats, and exposed to the influence of its *nerves*. Here that peculiar vital action is exerted upon the food which renders digestion so totally different from a chemical operation, and which actually suspends ordinary chemical agency. In this stage of digestion too it appears that the food is reduced to its proper consistence as to *fluidity*, the absorbents of the stomach rapidly removing any superabundant fluid, and thirst being excited when

the gastric secretions are insufficient for the due moistening of the mass.

The third step in the progress of digestion is the propulsion of the chyme into the duodenum, where it first becomes mixed with the bile and pancreatic juice. The length of time which the aliment remains in the stomach has never been very accurately determined. It probably varies in different individuals, according to the *energy* of the stomach, and in the same individual at different times, according to the nature of the food, and its greater or less facility of digestion. From three to four hours is probably the average. It does not appear either to be very well known (at least in man) whether during the *whole* of this time the pyloric orifice is closed, dilating at last to let the entire mass of food pass at once into the duodenum, or whether it dilates and contracts at intervals. In the duodenum the chyme certainly remains a considerable time, and changes there take place in it which are necessary to the full completion of digestion. The important influence of this organ has procured for it the appropriate name of *ventriculus succenturiatus*.

From this brief statement of the steps in the process of digestion, we shall be prepared to give an explanation of the several modes in which dyspepsia may be brought about.

1. It may depend, in the first place, upon a morbid state of the *glands* subservient to digestion. The

saliva may be deficient,—the gastric juice may be either deficient, or secreted in too large quantity, or vitiated in quality, whereby the coats of the stomach become enveloped with a thick tenacious mucus*. Lastly, the bile may get into the stomach, and there interfere with the first steps in the digestive process.

2. Dyspepsia may arise from a morbid condition of the *nerves* of the stomach, or from general torpor, or defect of the whole nervous system.

3. Dyspepsia may in some cases be owing to such morbid states of the *muscular* coat of the stomach as cause the food to be detained too long there, or which hurry it too soon into the bowels.

4. Dyspeptic symptoms, lastly, may originate, independent of all disease in the stomach, from the functions of the duodenum being imperfectly performed. Morbid accumulation in the duodenum is justly reckoned the immediate cause of that pain high up in the back which sometimes accompanies common dyspeptic symptoms, and is sometimes observed without them.

All practitioners must acknowledge the necessity of distinctions among the numerous cases of

* This appears to take place in some cases of dyspepsia connected with pregnancy, but certainly not in all. Occasionally such a state of the stomach would seem to depend upon a low degree of inflammatory action.

dyspepsia; but great difficulties have been experienced in establishing any which may have a practical application. Dr. Pemberton* attempted to found a division of dyspeptic cases upon the *pathological considerations* which I have just adverted to; but though we may acknowledge, in theory, an independent affection of the *glands*, the *nerves*, and the *muscles* of the stomach, yet, in practice, it will be found impossible to trace their diagnostic symptoms, or to ground upon such views any important differences of treatment.

The older nosologists almost uniformly agreed in looking upon *symptoms* as the best groundworks of distinction among dyspeptic cases, the most prominent being pain, vomiting, loss of appetite, and flatulence. Hence the division of the disease into gastrodynia, pyrosis, anorexia, and flatulentia. Such distinctions, however, are little calculated to guide us even in the employment of measures of temporary relief. As indications for the permanent cure of the disease, they are wholly useless. With a view to practice, I have always felt the absolute necessity of paying attention to the *causes* of the affection, and there can surely be no better basis of distinction, than such as is fitted to facilitate treatment.

The predisposition to dyspepsia may be discussed in a few words. There are undoubtedly persons who

* Practical Treatise on various Diseases of the abdominal Viscera. 1814. p. 99.

appear to possess, and perhaps even to inherit, *constitutional weakness* of stomach ; but such cases are at least very uncommon, and may without impropriety be discarded from our present consideration. It remains, then, only that the *exciting* causes of the primary form of dyspepsia be enumerated, and the following will, I believe, be found the most important.

Tabular View of the Varieties of primary Dyspepsia.

1. Dyspepsia from occasional overloading of the stomach.
2. ——— from habitual overfeeding.
3. ——— from habitual indulgence in spirituous liquors.
4. ——— from want of air and exercise.
5. ——— from excessive or long-continued evacuations.
6. ——— from anxiety of mind.

1. The first and most simple cause of dyspepsia is the occasional *overloading* of the stomach ; or the taking in of some indigestible substance, which, even in small quantity, offends the nerves of the stomach, such as tainted meat ; or, lastly, an accidental debauch of wine. This form of dyspepsia is commonly attended with a sense of oppression at the stomach, and that peculiar species of headache called the *megrin*. It is carefully to be distinguished from every other, because it demands a particular mode of treatment.

2. The second cause of dyspepsia is habitual full living, particularly the too *frequent* indulgence in animal food. This is one of the most common sources of dyspepsia in the upper classes of society,

and is easily distinguished from all others by its occurring along with gout.

3. The third is the abuse of spirituous liquors. This is the prolific source of dyspepsia in the lower ranks of life, in comparison of which all the other causes of the disease are of little importance. Dyspepsia from this cause is often a very *severe*, and always an obstinate complaint. It is attended in most cases with a very acute pain in the region of the stomach (gastrodynia), and tenderness of the epigastrium. It may be distinguished also by the trembling hand, which seldom fails to accompany it. This and the preceding form of dyspepsia, may so far be considered as connected, as the remedy for the disease is in both cases obvious; and as any plan of treatment which does not make the removal of the exciting cause an indispensable condition, will be either ineffectual, or serve only in the end to aggravate the evil.

4. The fourth cause of the disease is the want of air and exercise. Hence it is that dyspepsia is the frequent concomitant of a sedentary profession, and that it prevails not only among the luxurious and dissolute, but amongst the industrious and sober classes of the community. Distention of the stomach by wind, particularly after meals, eructations, and a torpid state of the bowels, usually prevail in this form of the complaint. To a certain extent it admits of relief by remedies, but the least irregu-

larity of diet is often sufficient to renew the unpleasant symptoms.

5. Another cause of primary dyspepsia may be found in excessive evacuations, such as flooding, and large bleedings at the arm; or in more moderate evacuations, if long continued, as for instance, leucorrhœa, or protracted suckling. The practice of keeping strong children at the breast for a year and a half or two years is very common in the lower orders in this country, and it leads, particularly in weak habits, to some of the most distressing forms of dyspepsia which are ever witnessed. The peculiar characters of this variety of dyspepsia are a sense of *sinking* at the pit of the stomach, giddiness, a feeling of different objects dancing before the eyes, and a *small*, often *imperceptible* pulse. It admits of very essential relief from medicine.

6. The last source of primary dyspepsia which requires notice, is mental emotion, particularly the depressing passions, fear, grief, but above all *anxiety*. This can only so far become a practical consideration, as it may lead to the propriety of recommending, in some cases, change of air, and scene, and habits.

The various *sympathies* of the stomach have frequently been described, and every one is sensible of the intimate connexion of dyspepsia with local disease in other parts. In many of these instances the affection of the stomach has been viewed as the

primary complaint, upon the principle that such states of local disease are best combated by remedies which *apparently* act on the stomach. It has been well observed however, that when a disordered state of the digestive organs, and local disease in a remote part, are concomitant, they may be but effects of some distant and unknown irritation, perhaps proceeding from the nervous system. The medicine therefore which *appears* to act beneficially on the local disease, through the medium of the digestive organs, may in fact operate by correcting that more *general* derangement of the health, of which disorder of the chylopoietic viscera is but one of the effects.

*Tabular View of the Varieties of secondary
Dyspepsia.*

1. Dyspepsia, symptomatic of general feverishness.
2. _____ of habitual constipation.
3. _____ of chronic disease of the liver.
4. _____ of chronic disease of the spleen.
5. _____ of functional disturbance of the
uterus.
6. _____ of obscure disease of the kidney.
7. _____ of chronic affections of the bronchia.
8. _____ of chronic cutaneous diseases.

1. Dyspepsia proves in many instances the *leading* symptom of general though slight feverishness. It may usually be distinguished by the thirst, restlessness, and white tongue which accompany it. 2. Habitual costiveness is not unfrequently the occasion of dyspeptic symptoms. The circumstance will, in general, be easily ascertained by the inquiries

which in every case of dyspepsia should be made into the present and *previous* state of the alvine evacuations. The student will remember that the functions of the stomach and bowels are very different, and that these organs may be either separately or conjointly affected. 3. In some cases dyspepsia will be found dependent upon chronic disease of the liver, but assuredly not to the extent which is frequently imagined. When a defective or vitiated state of the bile, that is to say, *functional* disturbance of the liver, exists, still more when structural disease of that organ is present, accurate investigation will commonly lead to the detection of some of those symptoms which were formerly enumerated (Vol. I. page 296) as *characteristic* of hepatic affections. 4. There can be little doubt that dyspepsia is, in certain instances, symptomatic of an affection of the spleen. It would be contrary to all analogy to suppose that this organ is not subject to some primary forms of disease, but very little appears to be known concerning them. Dr. Bree has described an affection of this kind*, which he imagines to consist in a *congestive* state of the vessels of the spleen. It is probable that an acquaintance with the physiology of the spleen might enable us to separate and refer to their true source many other cases now classed under the general head of dyspepsia. The peculiar symptoms of *splenic* dyspepsia, as far as I have been able to trace them, are fulness and sense of weight in the region

* Medico-Chirurgical Transactions, vol. ii. p. 84, "On painful Affections of the Side from tumid Spleen;" also vol. iii. p. 155.

of the spleen, without corresponding flatulence, a sallow countenance, and occasional hæmorrhages. It chiefly occurs in young women.

5. Dyspepsia is a frequent concomitant of disturbance in the uterine functions. It is a leading symptom in chlorosis and hysteria, and is well known as one of the earliest evidences of pregnancy. This form of the disease is easily distinguished from all others by the *habit of body* in which it occurs. Vomiting of the food half an hour after it has been taken (marking the great degree of irritability prevailing in the stomach) will generally be found characteristic of *uterine dyspepsia*. 6. Indigestion is a well-marked symptom in diseases affecting the kidney, the local evidences of which are very obscure. Hence it is that the original complaint is so often overlooked; but the error is fortunately of no material importance. 7. The functions of the stomach are frequently impaired in chronic affections of the bronchia, and this complication of disease is very formidable, particularly in old people. 8. A remarkable connexion has long been observed, between dyspepsia and several varieties of chronic cutaneous disease, but this is chiefly deserving of notice, as it bears upon the pathology of the latter affections.

Such are the most important distinctions which I have been enabled to trace among the several kinds of dyspeptic complaints. Their variety may, perhaps, at first, occasion some embarrassment to

the student, but experience has assured me that an imperfect investigation of the subject would be productive even of greater difficulties. Before entering on the treatment of dyspepsia, a few observations may be useful with reference to prognosis.

In all forms of dyspepsia the prognosis is favourable; even though of very long continuance, it does not appear to induce any serious or permanent mischief. In particular habits it gives rise to, or aggravates, calculous disorders; but there seem to me no just grounds for the notion entertained by a late author*, that it lays the foundation of *organic* diseases in distant parts, particularly in the lungs. The view which has been taken of its exciting causes will show that some cases admit only of temporary relief, but by far the larger proportion of dyspeptic patients may, by moderate attention to diet, regimen, and medicines, be permanently and effectually cured.

It is unnecessary to say that there is no one drug which will fulfil the great object of treatment, that of giving *tone* to the weakened stomach of a dyspeptic patient. This can be obtained only by measures calculated to avert the *cause* which may have excited the disease. The tone of the stomach never fails without some *assignable* reason, which strict inquiry will detect, and the knowledge of which

* Dr. Wilson Philip, in his "Treatise on Indigestion and its Consequences." London, 1821.

will point out the *proper* means of relief. Nor is it often that these will fail of success, provided the patient have sufficient firmness to submit to them, and afterwards remain sensible that his health is in his own hands. The assistance of the physician, however, is very often required where the patient either *cannot* or *will not* submit to the measures which prudence dictates. In such circumstances we must endeavour to aid the digestive process by *medicines*, but I would wish to impress upon the student the impropriety of trusting to them in dyspeptic cases. He should remember that almost any drug will injure digestion in a *healthy* state, and he should learn therefore to be sparing of medicine when the stomach is weakened by disease.

In every form of dyspepsia attention to diet is *indispensable*, and the patient must have regard, not to its quality only, but to its quantity. In a weakened state of the stomach it must have little given it to do. The body is strengthened, not in proportion to the quantity of food taken in, but to that which is *thoroughly* digested. Differences in the habits of life will of course lead to important differences in the *kind* and quantity of diet which should be permitted to a dyspeptic patient, but the following may be regarded as rules of very general application. It should consist in a due mixturè of animal and vegetable food, but the former should be eaten only *once* a day. It should be thoroughly masticated. Great varieties of food at any one time should be prohibited, as leading to an indulgence of

the appetite beyond the wants of the system. Articles of difficult digestion should be carefully avoided; such as all kinds of smoked, hard, dried, salted, and long-kept meat; all those dishes where too much nutritious matter is collected in a small space, eggs, for instance, potted meats, strong soups, and preparations of suet, fat, and butter; lastly, all raw vegetables whatever, with the exception of ripe fruits. Regularity in the hours of meals should be rigorously enjoined, and the patient directed to abstain from food at *all other times*.

Of the necessity of regular exercise to the due performance of the functions of the stomach, every one must be fully sensible. Walking is of all exercises the best. It is that which nature intends for us, and can never be compensated by what have been called the *passive exercises* of the luxurious.

The medicines which have chiefly been recommended in the treatment of *primary* dyspepsia, are emetics, purgatives and laxatives, bitters and stimulants, absorbents, mercurial alteratives, and nervines. I proceed to point out to what cases each of these classes of medicines applies, and upon what principles they may be supposed to act. Much of what is important in regard to treatment resolves itself into the avoiding of exciting causes; but it is necessary also to keep in view the duration of the disease, or the difference between *occasional* and *habitual* dyspepsia. Lastly, attention is to be paid to the degree of *strength* in the patient's general habit.

1. In the *acute*, or occasional dyspepsia, the object is to free the stomach at once from offending matters, and afterwards to permit it gradually to recover its tone. Where full vomiting has not taken place by the efforts of nature, the emetic draught, No. 1, may be given, followed the next morning by the purging draught, No. 5. This is one of the few cases of dyspepsia to which emetics are applicable. Their frequent use is much to be condemned, as weakening the tone of the stomach, and ultimately increasing the disease.

2. Occasional brisk purgatives, such as the draught now recommended, or that containing rhubarb (R No. 37), or the powder, No. 16, and pills, No. 25, will be found highly advantageous in dyspeptic cases which are not of long standing, and which occur in persons of robust habit. An ounce of Epsom salts is often sufficient to carry off a severe attack of the complaint. Where any considerable degree of feverishness exists (provided the stomach be not *irritable*), much advantage will be derived from the strong cathartic powder, R No. 38. Calomel, as a purgative, is well adapted to *sudden* attacks of dyspepsia in persons not habitually liable to it. In weakened habits it frequently irritates the stomach and aggravates the symptoms.

3. Laxatives in small doses, just sufficient to keep up a gentle peristaltic motion through the whole alimentary canal, are highly serviceable in *common* or habitual dyspepsia. Rhubarb in con-

junction with an aromatic (as in R No. 39), given a short time before a meal, is useful to persons of weak stomach and sedentary occupation, by preventing a lodgment of food in the stomach and duodenum after the first processes of digestion are over. With the same view the tonic aperient draughts (R Nos. 40 and 41) may be administered.

4. Bitters, astringents, stimulants, and other medicines, known under the general denomination of tonics, have been extensively employed in cases of dyspepsia, but they too frequently disappoint the expectations of the physician. It must be recollected that even the lightest bitters (camomile, orange-peel, or gentian) are stimulant and *heating*, and therefore wholly inapplicable to those numerous cases of dyspepsia which are connected with a *feverish* and *irritable* habit of body. Bitters are adapted to those forms of dyspepsia in which the tone of the stomach has been weakened by previous disease, or by long and severe evacuations. In that kind of dyspepsia which arises from the habitual use of spirituous liquors, bitters are sometimes borne, but the gentler stimulus of an acid is often preferable. In that species of dyspepsia which occurs in women who have suckled an infant too long, recourse must be had to the more powerful of the class of tonics. The *mistura ferri composita* in doses of ten drachms three times a day is very efficacious. Bark and the aromatic confection may be substituted, as in R No. 33. The volatile alkali is useful under the same circumstances, and may be administered in

the form No. 42. Where great languor and the feeling of sinking at the stomach are very urgent, we may direct a tea-spoonful of the cordial drops (R No. 57) to be given occasionally, or without the formality of a prescription, some ginger may be taken at the time of meal. The power of any stimulant in promoting digestion *to a certain extent*, is well known, and may legitimately be turned to advantage in the treatment of dyspepsia.

5. Absorbents, as lime-water, magnesia, and the carbonate of soda, may be combined with other medicines (as in R No. 58), where heartburn and acid eructations are particularly distressing; but it must be remembered that their good effects are always transitory, and often precarious, and that they can never be relied on for the *permanent* removal of the disease.

6. Mercurial preparations are frequently resorted to in *simple* dyspepsia, not as purgatives, but in small doses for their specific, or, as it is said, *alterative* effect upon the secretions of the body. Three grains of the blue pill, given at bed-time, certainly prove serviceable in many obstinate cases, but it is difficult to define under what circumstances such a plan of treatment is *essentially* required, or on what *well-ascertained* principle it operates.

7. There are, lastly, certain medicines employed for the cure of dyspepsia, whose agency is very obscure, and these may be classed together under

the head of *nervines*. Of these I may specify the oxyd of bismuth, given according to the formula No. 59, and the sulphate of zinc in small doses. Opium is sometimes necessary where the stomach is very irritable, or where severe pain is complained of. I have never observed that it possesses that power of checking inordinate secretion of the gastric juice which Dr. Pemberton attributed to it.

Such are the most important of the means by which we attempt to restore the *tone* of the stomach in *primary* dyspepsia. They are equally applicable to all the secondary varieties of the same affection, but are then of course to be adopted in union with other measures which the nature of the original disease suggests.

As a sequel to this account of dyspepsia, I shall notice certain affections of the stomach, closely allied to it, but which appear to have something peculiar in their pathology.

1. Spasm of the stomach is a disease of very rare occurrence, but of formidable character. Its attack is sudden and attended with acute pain. It generally arises from some error in diet, and is, for the most part, connected with that ill-defined state of constitution, called the *gouty diathesis*. The remedies on which we are taught to place reliance, *in the first instance*, are ether, laudanum, wine, and aromatics, taken internally; and fomentations or stimulating epithems to the epigastrium.

2. Dr. Pemberton was, I believe, the first to describe a disease of the stomach, characterized by *incessant vomiting*, unattended by pain, or any symptoms of diseased structure in the organ itself*. It has frequently *proved fatal*, and the cause of the disease has remained, in many instances, undiscovered after dissection. I believe it to be, in all cases, symptomatic of some obscure affection in a distant organ. In a case that fell under my own observation, it appeared to depend upon a morbid condition of the ovarium. In another, described in the Medical Communications†, it was connected with a diseased state of the kidney.

3. The most dangerous, however, of all the diseases of the stomach, is that of organic læsion of its coats. Ulcers of the stomach, sometimes partaking of a cancerous nature, stricture of the cardiac orifice, scirrhus of the pylorus, are the common appearances on dissection. The symptoms will, of course, vary with the situation of the organic disease. In the case of scirrhus thickening and consequent *stricture* of the pylorus, the symptoms are pain, often very acute, shooting to the back, and aggravated by taking food; vomiting generally occurring from one to three hours after a meal, the matter rejected being for the most part dark-coloured; and, lastly, emaciation. These distressing

* Diseases of the abdominal Viscera, page 132.

† Vol. i. page 127.

cases are sometimes very rapid in their progress, at other times tedious, equally resisting however every plan of treatment that can be devised.

Dr. Pemberton has remarked, that it is not very uncommon to find extensive mischief in the structure of the stomach, without the constitution being sensibly affected by it; that is, provided the disease was so situate as not to interrupt the passage of the food.

Nothing appears to be known regarding the *causes* of organic disease of the stomach.

CHAP. II.

JAUNDICE.

Outline of the Pathology of this Disease—Great Obscurity still pervading it—Causes of Jaundice—Of Gall-stones, and the Symptoms occasioned by them—Jaundice idiopathic and symptomatic—Symptoms of idiopathic Jaundice—Prognosis—Principles of Treatment.

MANY very intricate questions both in physiology and general pathology, are *intimately* connected with the consideration of jaundice. How far the further advances which science is destined to make, will throw light upon these, and consequently upon the nature and treatment of the several varieties of jaundice, it would be in vain to conjecture. It is sufficient for my purpose, if the student, in entering upon the investigation of this disease, is thoroughly convinced of the difficulties which assail him at the very threshold of inquiry, and is content, therefore, with those *qualified* and imperfect opinions concerning it, which are alone consistent with the present state of our knowledge. As this notion may perhaps appear to some overstrained, and hardly compatible with the ideas commonly entertained on

the subject, it may be right to begin by pointing out briefly the different physiological difficulties which will meet us in the several steps of our progress.

Jaundice obviously arises from some obstruction to the passage of the bile into the intestines; but to understand *correctly* in what manner this takes place, and to appreciate fully the symptoms which accompany it, we ought to be tolerably well informed of the mode in which the bile, in a state of health, passes through its ducts; of the use of the gall-bladder; of the use of the bile; and of the extent to which the nerves influence the secretion of bile. None of these points have been determined with that degree of accuracy which is desirable; but, obscure as they are, there is at least equal difficulty attaching to most of the *pathological* discussions into which we shall soon be led.

In all systems of nosology, different *species* of jaundice have been described; but in many cases it would appear, as if the ingenuity of authors had rather been displayed in enumerating the several ways in which obstruction *might* take place, than their experience adduced in determining which of them are the most frequent and important in practice. It is generally stated that jaundice may arise in one of three ways: *viz.* by *mechanical* obstruction existing within the ducts; by some functional disease of the ducts themselves, diminishing their calibre; and by pressure made upon them from without. Under these heads may be arranged the following pre-

sumed causes of jaundice : 1. The passage of gall-stones, (and in a few rare cases of hydatids,) along the ducts ; præternatural *viscosity* of the bile. 2. Spasm of the gall-ducts ; inflammatory action in the coats of the ducts. 3. Enlargements of neighbouring organs ; accumulations in the duodenum. Each of these will require separate investigation.

1. Some physicians have attempted to simplify the pathology of jaundice by ascribing all cases of it to the passage of gall-stones. Dr. Heberden, whose account of the symptoms of the disease is so generally accurate*, seems to have acknowledged no other cause for it ; and Dr. Cullen's views were warped by a similar persuasion. That it is a *frequent* source of jaundice must undoubtedly be acknowledged ; and therefore it becomes an object of importance to inquire into the *nature, origin, and consequences* of gall-stones.

Chemists have long been diligently occupied in the analysis of biliary calculi ; but this portion of animal chemistry has not hitherto attained such perfection as enables us to state with any degree of certainty their constituent parts. They appear to contain all, or most of the ingredients of bile, and not to differ in any *essential* characters from each other. They vary of course very much in number,

* Commentarii de Morborum Historia et Curatione. Lond. 1802.

size, and figure. Several of their properties, and their peculiar crystallized structure, are sufficient to prove that something more than mere *inspissation* of bile is requisite for their formation. What that is, however, pathologists have not hitherto succeeded in detecting. It is an important and apparently well-ascertained fact, that biliary concretions are always formed in the gall-bladder. The circumstances which determine their formation there are not well known, but a life of indolence seems particularly to predispose to them. They are much more frequent in women than men, and chiefly are met with in those who have passed the middle and active period of life.

Impacted in the gall-bladder, biliary calculi are productive of no inconvenience. They are often found upon dissection where no symptoms during life had given occasion for the least suspicion of their existence. When, from some cause unknown to us, they pass into the ducts, especially if their size be large, they create intense pain in most cases, and jaundice, for a time at least, in all. The pain is usually felt about the pit of the stomach, and is often described as more excruciating than that which attends acute inflammation, even in the most sensible parts of the body. The pain recurs at intervals. When the pulse is felt during one of these severe attacks, it is perhaps found to be accelerated in a very trifling degree, but generally it is not more frequent than in health, and sometimes it is even

slower*. There are present also at the same time nausea, vomiting, and extreme languor.

The further progress of the disease is subject to considerable variety. In some cases the gall-stone passes through with rapidity; in others it appears to meet with great difficulty in its passage. I have seen a gall-stone, weighing six drachms, pass by stool after a long continuance of the symptoms now enumerated. It has been made a matter of question, whether the gall-stone is propelled forward by the contraction of the coats of the ducts, or by the pressure of accumulated bile. Some have indeed imagined that the gall-ducts could never dilate sufficiently to allow a stone of large size to pass through them, and that it is more reasonable to suppose it ulcerates its way directly into the colon, or duodenum. Such a notion is certainly borne out by the fact, that in some cases a similar process has been *distinctly* ascertained to take place; the gall-stone working its course to the parietes of the abdomen, and being there extracted†. This, however, is one of the *many* doubtful points in the pathology of jaundice.

2. Præternatural viscosity of the bile has frequently been adduced as the cause of jaundice, and the opinion has been supported by the tenacious and

* Baillie's Morbid Anatomy, p. 268.

† An instance of this kind once fell under my own observation. On extracting the gall-stone, the ulcer healed up, the jaundice went off, and the patient, who had suffered excessively for several months, got rapidly well.

pitchy stools which are often passed after the obstruction has been removed. It is highly probable that some of the milder cases of jaundice, beginning without pain, and attended with general sluggishness in the action of the stomach, bowels, and heart, and with torpor of the whole nervous system, have really such a state of the biliary secretion for their proximate cause. Hardly any thing is known regarding the peculiar causes of this morbid condition of the bile. It has been stated to arise in certain cases from the habitual use of ardent spirits. I have frequently observed it in opening the bodies of those who die during the autumnal months, and it appears to have an influence in giving the peculiar character to the fevers of that season.

3. Spasm of the gall-ducts is another cause of obstruction strongly insisted on by some, and as strongly denied by others. The arguments in favour of such an opinion are, that jaundice has been observed to attend hysteria, and other spasmodic affections; that occasionally its attack is transitory, and frequently, where the disease proves fatal, dissection fails to show any concretions, or mechanical impediment to the passage of bile. The only one of these arguments that can be relied on is the first, but the combination of hysteria and jaundice is so very rare, that it should rather be viewed as an accidental circumstance, than as tending to establish a great pathological principle.

4. A much more probable occasion of obstruction to the descent of the bile is inflammatory action

in the coats of the ducts, either originating in them, or spreading to them from the liver, or from the mucous surface of the intestinal canal. The grounds on which such a proximate cause of jaundice has been built appear to me well established, and they are important as bearing so immediately on practice. It has been observed that jaundice often arises from exposure to cold, more especially after taking large draughts of cold water while the body is overheated; that it begins under such circumstances with rigors, and is attended with many symptoms of general fever; that it is frequently complicated with *tenderness* of the epigastrium, or of the right side; and that after death, inflammation of the liver, or of the mucous coat of the intestines (and their consequences), have been sometimes distinctly traced*.

5. Enlargements of neighbouring parts, such as scirrhus of the pancreas, scrofulous glands, swelled and tuberculated liver, have occasionally been found after death so situate as to press on the biliary ducts, and to obstruct the passage of the bile. Jaundice, however, it ought to be remarked, is often observed as a symptom of diseased liver, where dissection would hardly justify so *mechanical* an explanation of its occurrence. Pathologists have evidently no very defined views regarding the real nature of this which has been called *hepatic* jaundice.

* See a Paper on "Jaundice," by Dr. Marsh, in the Dublin Hospital Reports, 1822, vol. iii. pp. 298 and 302.

6. There is reason to believe that impediments to the course of the bile occasioning jaundice have in many cases existed in the duodenum, and we can readily understand how mucus or sordes accumulated there may so press on or clog the mouth of the common choledoch duct as to produce such an effect. The opinion is rendered probable by the rapidity with which the disease sometimes yields to a single dose of purgative medicine. It is not unlikely that infantile jaundice, the *yellow gum* of the lying-in room, has its origin in such a cause.

To complete that brief outline of the general pathology of jaundice which it is my object here to give, I must advert to the curious but well-ascertained connexion existing between jaundice and certain states of disease in the brain and nervous system. From the earliest periods of medicine, we find such an opinion avowed, and it may be illustrated in a variety of ways. Jaundice has been observed in many cases to arise most incontestably from mental emotion, more especially from intense domestic grief. It is frequently complicated with decided proofs of disease of the encephalon, and in severe cases it has been observed to prove fatal by the supervention of *apoplexy*. Inflammation, and abscess of the liver, and jaundice, have often succeeded to injuries of the head. The fevers of hot climates in which the brain and nervous system are so deeply involved, are frequently complicated with yellowness of the skin. These phænomena probably

admit of no more precise explanation than the *mutual sympathy* existing between the brain and all parts of the animal economy. With reference to prognosis they are of much importance to the observing physician.

The views which have now been taken of the pathology of jaundice, lead to the distinction of it into the two great classes of idiopathic and symptomatic. Idiopathic or genuine jaundice is that which *commences* with yellowness of the skin, and is attended with constitutional symptoms obviously referable to the morbid course which the bile takes. Symptomatic jaundice, on the other hand, is that in which yellowness of skin occurs *subsequent* to, and is in its progress complicated with, *unequivocal* evidence of local disease, either in the liver or in some distant part. In describing the *symptoms* and progress of jaundice, I am compelled to confine my attention to the *idiopathic* form of the disease.

The only symptoms necessarily present in every case of jaundice, are discoloration of the skin and urine, and a corresponding absence of the natural colour of the stools. These vary however greatly in intensity; sometimes the yellow tinge is so slight as to be perceptible only in the conjunctiva. At other times the whole skin becomes deeply imbued with it. Popular opinion long ago divided jaundice into three kinds, the yellow, the green, and the black, according to the intensity in the colour of the skin; and with it Dr. Baillie's expe-

rience (recorded in the College Transactions*) in some measure coincides. He considers the *green jaundice* as a less frequent, but much more severe form of disease than the common or yellow jaundice. It is in most cases connected with an enlarged, hard, or tuberculated state of the liver. The progress of the disorder is slow, but its fatal issue is almost always certain†. In a few instances persons have lived for many years (enjoying even tolerable health), with the green tinge of bile in the skin. After a time, however, the body becomes emaciated, dropsy perhaps supervenes, the powers of the constitution waste, and at length sink altogether.

In all the varieties of jaundice the stools are pale, and the urine loaded with bile, so as to tinge linen which is immersed in it of a yellow colour, more or less deep according to the severity of the case. Other secretions, however, are supposed to be similarly impregnated; the saliva, the perspirable matter, and, as some have confidently affirmed, the milk. This however is doubtful. It is a circumstance worthy, perhaps, of note, that the colour of the tongue is never changed (at least as far as my own observation extends), even in the severest forms of jaundice. How this is to be accounted for, I am quite at a loss to conjecture. It inclines me to

* Vol. i. page 143.

† Of all the cases of green jaundice which fell under Dr. Baillie's notice, he remembers only two that recovered.

distrust the observations of some of those authors who have described the yellow dye as pervading all the internal parts of the body, the brain, heart, abdominal viscera, and even the bones*.

But independent of symptoms referable to the presence of bile in the circulation; there are others of a different character, very frequently met with in jaundice, such as languor and lassitude, lowness of spirits, an itching of the skin, often exceedingly obstinate and troublesome, a sluggish pulse, and debility. Jaundice too is commonly attended with the usual marks of indigestion; loss of appetite, flatulence, and acid eructations. It is generally stated, and as generally believed, that costiveness is a necessary consequence of a want of bile in the alimentary canal, and it has hence been argued that the great use of the bile is to *stimulate* the intestines. But the fact is not so. Very often the bowels act as under common circumstances, and sometimes a diarrhœa prevails.

It is certainly a singular circumstance, that in some cases where, judging from the colour of the

* Much ingenuity has been displayed in ascertaining by *experiment* as well as by reasoning, how the bile gets into the circulation; whether by the medium of the thoracic duct, or by the hepatic veins; by *absorption*, that is to say, or *regurgitation*. The determination of this point is of no importance to the pathologist, and the theory of jaundice is sufficiently obscure without such an addition. It obviously merges in the more general questions connected with the physiology of absorption.

skin and of the evacuations, the disease must have gone to a great extent, the general system has yet not at all sympathized. I have seen young persons continue busily engaged in an active employment—their appetite, sleep, pulse, and tongue remaining healthy, where yet the jaundiced colour of the skin was intensely deep. This appears to prove that the mere presence of bile in parts not destined to receive it is of no serious detriment to the system, and that many of the constitutional symptoms attending jaundice are attributable to some *ulterior* cause. It concurs too with many other phænomena of this disease, in leading to the belief, that the bile while circulating in the blood-vessels is still capable of exerting a degree of influence over the digestive process. In no other way can we satisfactorily account for the nutrition of the body so often going on but little disturbed even in obstinate cases.

The remarks already made will preclude the necessity of detailing minutely the usual progress, and of laying down the *prognosis* in this disease. Almost every thing depends, as Dr. Heberden remarked, on the circumstance of the liver being in a healthy or morbid state. If jaundice arises from *simple* obstruction of the biliary ducts, and if the bile continue to be secreted of a *healthy* quality, it is a disease of little or no danger. Hence it happens that the jaundice of infants and *young persons* so generally ends favourably, while that which occurs in advanced life is very often the precursor of worse evils, dropsy and apoplexy, and in fact be-

comes one of the strongest evidences of a broken-down constitution. No definite period can be assigned for the continuance of the disease. It frequently recurs in those who have once suffered an attack of it.

The works of medical authors are not wanting in remedies for the jaundice, but some of them are very inert, and others of such opposite characters, that it is difficult to suppose they could have been productive of any real benefit. If the views which have been taken of the pathology of jaundice be correct, it is easy to perceive that the treatment must vary essentially in the different varieties of the affection. All that I now propose, is to offer a few reflections on the general principles which have usually guided physicians in their attempts to afford relief in this obscure disease.

I need hardly remark, in the first place, that where the nature of a disease is little known, *symptoms* must be the guide to practice. Where jaundice occurs, therefore, without giving rise to any local pain, or constitutional disturbance, we should *abstain* from medicine, and allow nature to work the cure. Where pain is urgent, it must if possible be relieved, and opium has always been resorted to with this object. Two or three grains of opium in the solid form may be given in the first instance, and repeated according to the urgency of the symptoms. A warm bath is sometimes of great use; and under very aggravated circumstances, blood must be taken

from the arm. A brisk purgative is often of essential service in the jaundice of young persons; but a continued exhibition of aperient medicines, under the impression of thus affording a substitute for the *natural* stimulus of the bile, has been productive of serious inconvenience. An emetic, in like manner, has sometimes proved useful, apparently by *emulging* the biliary system, but in most instances it is of little or no avail.

A generous diet, cheerful company, change of scene, and moderate exercise in the open air, especially riding on horseback, by promoting the general health, will go far towards effecting a cure, and are frequently preferable to the best-regulated course of medicine. The dyspeptic symptoms under which the jaundiced patient so often labours, sometimes admit of relief by the judicious use of bitters and aromatics.

The great desideratum, however, has been to discover a medicine which has the power of dissolving the biliary calculus, or at least of altering that morbid condition of the bile which leads to the formation of the gall-stone. *Specifics* for the jaundice were at one time in great vogue, but of late they have been deservedly neglected. The remedies which are now chiefly trusted to for *resolving the obstruction* are alkalis, soap, the nitric acid, taraxacum, the natural mineral waters, especially that of Cheltenham or its artificial substitute, and lastly, mercury.

Of the influence of mercury in certain states of diseased liver with which jaundice is often associated, I have already expressed my opinion, and in such a combination of disease it may unquestionably be employed with advantage; but in simple jaundice from obstructed ducts, it is difficult to understand on what principle it can legitimately be resorted to.

Lastly, the practitioner will bear in mind, with a view to practice, that jaundice sometimes presents itself under the aspect of an inflammatory affection, and he will see the propriety of treating such cases by local blood-letting, fomentations to the side, and saline aperients.

CHAP. III.

DIARRHŒA AND CHOLERA.

Diagnosis of the several Kinds of Disease attended with Purging—Pathological Considerations connected with it—Causes of Diarrhœa—Ingesta—State of the Atmosphere—Diarrhœa independent of external Agents—Prognosis—Treatment.—Of Cholera—as it occurs in temperate Climates—as it occurs epidemically in hot Countries—Pathology of epidemic Cholera—Treatment.

WE are now to enter on the consideration of that important class of disorders, which are known to the world under the familiar denomination of *bowel complaints*. The distress which they occasion is far greater than what attaches to diseases of more real danger; and from a general belief prevailing that their treatment is very simple—at least that the influence of medicine upon them is great, the patient is dissatisfied unless he experiences speedy and effectual relief. To meet this (not ill-founded) expectation, the practitioner must be aware of the several kinds and causes of bowel complaints, and have rendered himself familiar with those minute shades of difference in symptoms, on which the successful ad-

ministration of remedies so essentially depends. By nosologists they are distinguished by the names of diarrhœa, cholera, colica, and ileus.

Opposed as these diseases *apparently* are to each other in the prominent symptom, the state of the alvine evacuation, the student must yet be apprized of their intimate pathological affinity, and of the necessity of considering them, not only in their relation to each other, but as connected with dyspepsia, and with every variety of abdominal inflammation. I am fully sensible indeed, that such enlarged views of disease are scarcely reconcilable with the requisite details of *elementary* instruction; but it will be necessary to keep them in mind from the moment the student enters on the practice of his profession, and gradually to allow the artificial distinctions of diarrhœa, dysentery, colic, and enteritis, to merge in the wider notion of disturbed function of the intestinal canal.

The characters of enteritis and of dysentery have been already discussed (Vol. I. pp. 281, 304, 309). It will be remembered that the former is attended generally with a costive, but sometimes (especially where the mucous coat of the intestines is primarily affected) with a relaxed state of the bowels; while the latter is uniformly characterized by *purging*, the stools being slimy or bloody, without any admixture of natural fæces. Purging is a symptom of disease greatly diversified in its degree, causes, concomitant symptoms, and in the appearance of

the matter evacuated. When it occurs without fever, and when the evacuations consist of a watery secretion from the bowels, more or less mixed with their natural contents, it constitutes an idiopathic complaint, and is termed diarrhœa. When the upper viscera of the abdomen (the stomach and liver especially) are implicated, and when to purging is added vomiting, with a copious, or perhaps vitiated, secretion of bile, the affection is of a more formidable kind, and according to the degree of its violence, is called either *bilious diarrhœa*, or cholera. To the highest grade of this disorder, when it becomes complicated with spasms, and excessive exhaustion of the whole system, the term *spasmodic cholera* is applied.

Diarrhœa, in the limited sense in which it is now taken, is yet a disease presenting itself under very different aspects. To decide therefore in any particular case upon its nature, and to direct its treatment with success, it is necessary to investigate accurately its rise and progress, its probable cause, its preceding and concomitant symptoms, but above all it is requisite to have clear notions of the pathology of purging.

That increased irritability in the intestinal canal which leads to purging, is commonly (though not necessarily) associated with increased secretion from the vessels which open on its internal surface. Such a state of disordered function in the bowels may be the result of causes acting on them *directly*, or through the medium of the general system. To the

first of these heads we refer,—stimulating matters taken into the stomach, either as food or medicine. To the second,—particular states of the atmosphere, diseases of other parts of the body, mental emotion, and some others.

1. Diarrhœa is, in the first place, a frequent consequence of aliment, taken either in too great quantity, or improper in point of quality. Being imperfectly digested, it is sent in a crude and probably *acrid* state to the intestinal canal, the delicate mucous membrane of which it irritates, and thereby occasions a purging. Diarrhœa arising from this cause is usually accompanied with the common symptoms of *dyspepsia*, and not unfrequently with severe *vomiting*. The appearance of the matter evacuated is often sufficient to characterize this form of the disease without reference to its immediate exciting cause. It is attended with griping pains of the bowels, but the pains are perfectly relieved by the evacuation. It commences suddenly, and in almost all cases, though it harasses the patient for a time, it carries with it its own cure. This is the *diarrhœa crapulosa* of nosologists. It is unnecessary to add that the same kind of diarrhœa is frequently induced by design, and that there exist in nature a variety of substances, both vegetable and mineral, which have the property of producing, even in very small quantity, purging. Should the bowels be peculiarly irritable, or under common circumstances, when taken in excess, these

drugs produce that species of diarrhœa which has been termed hypercatharsis.

2. A most important feature in the pathology of diarrhœa is its connexion with particular states of the atmosphere; but the same general principle is applicable to almost every other disease attended with purging. We have already* had occasion to notice it when illustrating the dependence of dysentery upon a moist and heated atmosphere. We shall presently see it constituting all that is known of the causes of cholera, and we may now perceive it influencing the phænomena of diarrhœa. This disease chiefly prevails in the autumnal months, and after any very remarkable changes in atmospheric temperature; as for instance, on the breaking up of a long frost†. Such a condition of the atmosphere is sufficient of itself to produce diarrhœa, but it most commonly acts as a predisposing or *accessory* cause, augmenting the irritability of the intestines, and rendering them susceptible of stimuli, which, under other circumstances, would have occasioned no inconvenience. We presume that it operates like an accidental exposure to cold, by altering the distribution of the fluids, and determining them in increased quantity upon the mucous membrane of the intestines.

* Vol. I. page 109.

† This was strikingly exemplified in the general prevalence of diarrhœa in London, in February 1823, after one of the longest and severest frosts which have occurred in this country for many years.

3. I have stated that there are other causes of diarrhœa which act through the medium of the general system. Sometimes they operate singly, but more commonly, as just hinted, in combination with certain conditions of the atmosphere. Of these the most important are mental emotion, especially anxiety of mind, arising from the embarrassments of business, excessive fatigue, late hours, and irregular habits. Lastly, diarrhœa occurs *symptomatic* of certain diseases in other parts of the body with which the intestines *sympathize*. This is strikingly displayed in the diarrhœa which attends the process of dentition in infants, ulcerated lungs, suppressed cutaneous eruptions, and chronic disease of the liver.

Diarrhœa connected in this or any of the preceding ways, with general disturbance in the *whole* system, is often a severe and very troublesome complaint, frequently recurring after it appears to be effectually suppressed, and giving rise, by its long continuance, to loss of appetite, languor, lassitude, great debility, and emaciation. The *weakness* induced by a severe purging that lasts only twenty-four hours, is often extreme; and, while it shows us the necessity of giving opiates and astringents in this disease, should teach us also the value as well as the *danger* of purgatives in *others*. Diarrhœa is not, however, a disease of danger, except in the case of children and of old persons. The exhaustion produced by it in children has often occasioned a fit of convulsion which proves fatal. Dr. Baillie has

described * a particular species of *chronic* diarrhœa occasionally met with in elderly persons, and in those who have lived in warm climates, and suffered from diseases of the liver. It consists in a copious evacuation of a matter resembling a mixture of lime and water (sometimes of the consistence of pudding), and very frothy on the surface. It occasions great debility, is very liable to recurrence when the mind is harassed, is little under the control of medicine, and ultimately wears out the constitution. Persons have lingered under it however for several years. The peculiar nature of this variety of diarrhœa does not appear to be accurately known.

The treatment of diarrhœa must be regulated by a consideration of its cause, of the age, constitution, and previous state of health of the patient, the concomitant symptoms, the manner of invasion, its duration, and effects upon the general habit. Much importance has always been attached, by nosologists, to the peculiar appearances of the evacuations. These will afford some instruction to the practitioner in reference to the severity of the disease, and the progress made towards a cure, but they are incapable of any immediate practical application.

1. Diarrhœa in young persons of robust habit may very often be permitted safely and with propriety to wear itself out. It should be remembered,

* Transactions of the London College of Physicians, vol. v. p. 166.

however, that where the disease is sufficiently active to effect its own cure, it will do so *speedily*. The continuance of the complaint for more than twenty-four hours must have some latent cause, which it is necessary to detect and to obviate by medicines.

2. Diarrhœa, from whatever cause it may arise, leaves the bowels morbidly *irritable*, and this it is proper to check by an anodyne given either with a demulcent as in R No. 60, or with a gentle tonic and absorbent as in R No. 61. In severe cases it is necessary to repeat a draught of this kind after every loose motion.

3. The diarrhœa of children being often connected with imperfect digestion and the formation of *acid* in the stomach, it is right in such cases to begin by exhibiting a gentle emetic of ipecacuan, and subsequently, small doses of chalk mixture, with a proportion of syrup of poppies. This plan of treatment is applicable also in some instances to the diarrhœa of adults.

4. Where the disease continues long, with griping pains and much *tenesmus*, it is presumable that there are acrid fæces pent up in some portion of the canal, which the natural action of the bowels is unable to dislodge; and here a purgative medicine is indispensable. Castor oil, or calomel and rhubarb (R No. 16), may be given, so as to ensure a free discharge from the bowels. I have seen the same treatment required, where the disease, in the first

instance, was too speedily checked. Under all other circumstances, purgatives are either unnecessary or absolutely hurtful.

5. When diarrhœa resists the medicines now recommended, especially when it occurs in elderly persons in that chronic form lately alluded to, more powerful astringents become necessary. I have derived great advantage from a mixture (No. 62) containing the compound powder of kino. The conf. opiata is adapted to these cases as well as to those of hypercatharsis. Starch injections containing laudanum, are sometimes required once or even twice during the day.

6. Lastly, when diarrhœa can be distinctly traced to arise from cold; when it occurs to persons previously in bad health; in variable weather while inflammatory affections are prevalent; and above all, when it is complicated with any degree of abdominal pain or general fever, the student will bear in mind the possibility of its being connected with an inflammatory condition of the mucous membrane of the bowels, and he will obviate this, as circumstances may require, either by bleeding at the arm, leeches, and fomentations; or the milder discipline of confinement to bed, the pediluvium, and Dover's powder. It is unnecessary to add, that here, as in every other form of diarrhœa, the diet should be light and easy of digestion, and may consist principally of gruel, rice, panada, sago, and mutton broth.

The leading features of cholera, and its pathological relation to diarrhœa, have been already pointed out. From the earliest times it has been acknowledged as one of the most dangerous diseases to which the human body is subject, but the extreme malignity of which it is susceptible was never thoroughly known until within these few years, when it has been seen to spread with an uncontrollable violence, unequalled, except in the records of the most dreadful plagues. Cholera must be distinguished, as it occurs in this country *sporadically*, and in hot climates *epidemically*.

1. Cholera, as *here* observed, makes its attack in almost all cases suddenly and unexpectedly. It commences with nausea, severe griping pains of the bowels, vomiting, and purging; the matter rejected consisting partly, if not principally, of *bile*. It is attended with great thirst, a coated tongue, a small, frequent, and feeble pulse, and a hurried irregular respiration. The prostration of strength which accompanies it, and the rapidity with which it advances, give to this disease a peculiar character, and render it one of very urgent danger. In many cases when unchecked, it proceeds so rapidly, that in a few hours the patient is brought into a state of considerable risk. Cramps of the legs, extending to the thighs, abdominal muscles, and diaphragm, combine with the incessant vomiting and purging to exhaust the patient's strength; and if relief be

not speedily obtained, are followed by coldness of the extremities and of the whole skin, extreme restlessness, clammy sweats, hiccup, and death. In general there is no pain of the abdomen on pressure, and little or no delirium; the patient dying from exhaustion of nervous power. Cholera is not usually attended by febrile symptoms, unless indeed we acknowledge that to be a febrile state which the ancients call *lipyria*, where the inward parts burn and the skin feels cold. In this country cholera has proved fatal in twenty-four hours, and it seldom lasts longer than three or four days. It occurs principally in the months of July and August, and appears to be altogether dependent upon some peculiar influence of a heated atmosphere on the system, more particularly on the functions of the chylopoietic viscera. The violence of the disease is almost always proportioned to the heat of the preceding summer.

It was a general belief among the older pathologists, that cholera depended primarily upon an *increased* and vitiated secretion of bile, irritating the stomach and bowels. The more enlarged views of the complaint which have been taken since cholera has prevailed so extensively in India, enable us to correct this notion, and to show that the proximate cause of the disease is still unknown, though, whatever it be, it operates *equally* on the stomach, liver, and intestines. The peculiarities of that highly malignant form of cholera which has been observed in India, may be thus briefly enumerated.

The disease began sometimes suddenly, sometimes after two or three days of previous illness. When it ran its full course it was divisible into two stages. The first was that of oppression or collapse, characterized by a pulse hardly to be felt, cold extremities, universal cramps, excessive weakness, an expression of deep anxiety, and the purging of thin, watery, or starchy stools. If the patient survived this stage, lasting from twenty-four to forty-eight hours, a *reaction* came on, amounting to fever, which was in itself a source of imminent danger. During this time the bowels threw off a load of vitiated bile, the stools being dark and pitchy; and if due attention was now paid to keeping up the strength by light nourishment, the system recovered by degrees from the shock it had experienced. Where the onset of the disease had been so violent as to occasion death during the first stage, the appearances presented on dissection were those of *congestion* in the branches of the vena portæ, the liver enlarged and gorged with blood, the gall-bladder full of dark green or black bile, and the inner surface of the stomach studded with tissues of enlarged vessels.

The cholera of India, when in its greatest violence, has been known to prove fatal in a few hours, and sometimes without even the appearance of spasm; the pulse sinking at once, and all the secretions being entirely suspended. Every phænomenon connected with the disease denotes a highly deranged state of the whole nervous and vascular system of

the body, the blood being thrown by the contraction of the vessels of the surface upon the deeper and larger organs. Of the remote causes of this extraordinary disease, further than its general dependence on the heat of the climate, nothing is decisively known. Some circumstances led to the belief that it was propagated by a specific contagion, but others might be mentioned irreconcilable with such a supposition.

The treatment of cholera as it occurs in this country, under an aspect so much less formidable than that which it assumes in India, is to be conducted on the following principles. The patient's strength is to be supported by drinking freely (but in small quantities at a time) of broth, which will serve also to dilute the depraved secretions which are poured into the intestinal canal. At the same time the morbid irritability of the bowels and of the whole nervous system, is to be allayed by opium given in doses proportioned to the violence of the disease. Where the pulse is feeble and the general debility great, warm negus must be administered. As the disease subsides, the tone of the stomach may be supported by the decoction of bark, or the infusion of the aromatic bitters, cascarilla and cusparia. Where the surface is cold, a warm bath has been had recourse to with very beneficial effects. The necessity of instant attention and unceasing superintendence in all cases of cholera must be apparent. Without such care the powers of life may quickly sink beyond the reach of medical aid.

A similar system is to be pursued in that aggravated form of disease which prevails in hot climates. A draught with sixty drops of laudanum in an ounce of peppermint-water is to be given in the first instance, and the tone of the heart and arteries supported by the warm bath, stimulating frictions, and the liberal use of brandy, ether, ammonia, camphor, and other diffusible stimuli. When the stomach is quieted, a full dose of calomel appears to be useful by *emulging* the biliary system. That blood-letting should ever have been resorted to in a disease possessing such pathological characters as cholera, may indeed require to be stated; but it can hardly be necessary to add, that in many cases no blood could be obtained.

CHAP. IV.

COLIC AND ILEUS.

General Character of these Diseases—Division of Colic into four Species—Common or accidental Colic—Bilious Colic—Symptoms and Progress of this Disease—Its pathological Relations—Mode of its Treatment—Colica Pictonum—Its Symptoms and Method of Cure.—Of Ileus—Its Causes and usual Termination.

THERE is but little in the history of these affections which is novel, or interesting either to the practitioner or the pathologist. A few observations therefore on their general character, causes, and methods of treatment, will include all that seems essential to be known regarding them.

Colic and ileus are to be considered as *gradations* of the same state of disease; *viz.* of a spasmodic constriction of some portion of the intestinal canal. They are equally characterized by griping pains and distention of the lower bowels, a sense of twisting or wringing round the navel, and spasmodic contractions of the abdominal muscles, with *costiveness*. When these symptoms continue obstinate,

and when there is added to them *vomiting*, particularly of matter having the appearance or odour of fæces, the disease is in its highest degree, and is called ileus, or the iliac passion.

Nosologists have been at great pains to describe different *varieties* of colic, but they have been extended beyond all reasonable bounds. It will be found in practice that colic admits of a fourfold division, according to the nature of the remote cause. The first is the *accidental* colic, arising from some acrid ingesta, which irritate the bowels without producing diarrhœa. The second is the *bilious* colic, a form of disease closely allied to bilious diarrhœa and cholera, occurring along with them, principally in the autumnal months, and apparently differing from them only in some unessential features. The third is the *colica pictonum*, the well-known painter's colic, arising from the poison of lead. The fourth is *ileus*, from disorganization of the viscera, or from some mechanical impediment to the due exercise of their functions.

1. Common or accidental colic is frequently occasioned by improper articles of diet, or acescent wines. It is usually attended with some symptoms of indigestion, and is hence called the *flatulent colic*. The pain of which the patient complains is often very acute, but seldom permanent, and is in almost all cases *relieved* to a certain degree by pressure. These circumstances, joined to the natural state of the pulse, and the absence of all febrile heat of skin, will seldom

fail to constitute an obvious diagnosis between colic and *enteritis*, the only disease with which it is likely to be confounded. The student, however, will bear in mind that the causes of colic prove also in some cases those of abdominal inflammation, and he will be prepared to find the one merging occasionally in the other. He will not hesitate therefore to take away blood, if the severity of the attack, or the habit of the patient, lead to the probability of inflammatory action.

Under common circumstances the treatment of this variety of colic is sufficiently simple. In many cases the spasm is relieved by a carminative draught (R. No. 63), or a small portion of brandy. A table-spoonful of the tincture of rhubarb is a familiar and useful remedy. Where these fail of the desired effect, the aperient draught, No. 64, containing rhubarb and the aromatic confection, may with propriety be given, or stronger purgatives if necessary, and their operation promoted by a purging enema. This species of colic is frequently observed in women of an *hysterical* habit, and the term *hysterical* colic has often but unnecessarily been applied to it.

2. The second species of colic is that to which the term *bilious* is popularly and, I believe, justly appropriated. It is one of the common autumnal epidemics of this country, and will generally be found to prevail after a long continuance of a hot and moist state of the air. It occurs at the same time

with diarrhœa, cholera, and jaundice, and may fairly be imputed to an increased and vitiated secretion of bile. It would appear as if the bile under such circumstances wants that cathartic quality which it commonly possesses, and acquires some præternatural acrimony.

Bilious colic is ushered in with headache, loathing of food, a bitter taste in the mouth, and very often bilious vomiting; but the *urgent* symptoms are distention of the bowels, griping pains, and obstinate costiveness, or at most tenesmus, the motions being very scanty and partly slimy. The continuance of such an irritation even for a short time usually leads to fever, and bilious colic therefore is frequently complicated with the more general affection *bilious fever*. In this particular variety of fever headache will be observed, referred to the back part of the head. The tongue is loaded, the fur upon it being often yellow, and in streaks. There is much thirst, a short dry cough, restlessness, and great languor and lassitude, the pulse being seldom much accelerated, or the heat of skin very apparent.

In this state of disease if a discharge of fæculent bilious matter can be obtained, the symptoms generally yield, but it is often exceedingly difficult to procure evacuations of this character, on account of the irritability of the stomach. Where bilious stools are not brought away, it is common to find chocolate-coloured motions passed, frequently in vast quantity, reducing the patient to a state of great

weakness. If by the fortunate combination of medicines, or by the efforts of nature, the irritating cause is removed, the tongue becomes clean, appetite returns, and the patient recovers strength.

Such is a brief sketch of the bilious colic as it prevailed in London in 1821. It closely resembled that described under the same name by Sydenham, as occurring in London in 1670-71. The observations formerly made on the causes of bilious diarrhoea apply equally in this case.

In the treatment of bilious colic, the object is to free the bowels from the load which oppresses them, but the practitioner must also keep in view that *irritable* state of the whole tract of the alimentary canal, which is so prominent a feature in this disease. Opium at once suggests itself as a ready means of allaying this morbid irritability of the bowels; but experience will show, that though it affords relief in the first instance, its exhibition is in most cases succeeded by increased feverishness, and an aggravation of headache, and uneasiness of the bowels.

Unless full vomiting has already taken place, it will be advisable to begin by giving ten or fifteen grains of ipecacuanha, which may be followed by a pill containing calomel and rhubarb, a dose of castor oil, or the common senna draught. If there is much irritability of stomach, it will be advisable to commence with a saline medicine in a

state of effervescence, containing a few drops of laudanum. This will enable the practitioner to administer his aperient subsequently with more advantage. When the operation of the purgative upon the bowels is manifest by the appearance and odour of the evacuations, a full dose of laudanum may be given with the best effects. For several days afterwards it becomes necessary to exhibit, occasionally, some gentle aperient which may prevent *accumulation* and reaction. During the convalescence, which is sometimes very tedious, advantage will be derived from a light tonic, such as equal parts of camphor mixture and decoction of bark.

3. There is a species of colic which has been proved by ample evidence to arise from the gradual absorption of lead into the system. Little mention is made of such a disease in the writings of the ancient authors, though many of them were sensible of the generally deleterious effects of lead upon the body. Paulus Ægineta is the first who distinctly describes the disease, without however being aware of its true cause. For many years afterwards it was attributed to *acidity*. It was first called *colica pictonum* by Francis Citois in 1617. The discovery of its real source was made by some German physicians in 1696, who in attempting to investigate the origin of an epidemic colic then prevailing, ascertained that vintners had been in the habit of making their wines palatable by throwing into the casks *litharge*. The first author who drew the attention of the profession

to the subject in this country, was Sir George Baker, who in the most elaborate manner* traced the disease to lead in a variety of situations where it had not previously been suspected.

The complaint has little to distinguish it from the more common varieties of colic. There is the same violent and almost constant pain about the navel, with a retraction of the integuments of the abdomen towards the spine, pain in the small of the back, tenesmus, and sometimes, though not constantly, vomiting. The patient experiences a degree of relief by keeping the trunk bent upon the knees. The constitution suffers but little even in aggravated cases of this affection. The pulse and tongue are unaffected, and no debility is produced by it.

Colica pictonum, when once established, is very liable to relapses. In the course of time it assumes a chronic character, and is accompanied with a remarkable palsy and wasting of the muscles of the fore-arm and hand. The joint of the wrist becomes loose and flaccid, and a tumour is often perceivable in the back of the hand. If such complaints concur, where the patient's habits of life expose him to the influence of lead, the true nature of the disease is placed beyond the possibility of doubt.

* Transactions of the London College of Physicians, vols. i. and ii. 1767. A series of six papers.

The only peculiarity that I am aware of in the treatment of this form of colic, is the greater necessity of employing *opium* along with the purgative. In the more common varieties of the disease it is often advantageous to *allay* the pain in the first instance, but here the spasm is so fixed (apparently in the circular bands of the colon), as generally to defeat the operation of a purgative, unless it be aided by the relaxation which an opiate produces. If the stomach is in a state to allow the administration of a purgative in a *liquid* form, it should always be preferred. The draught No. 65, containing castor oil and opium, may be repeated every six hours, until the bowels are freely moved, or the common senna draught may be given with a proportion of laudanum. Where the stomach is irritable, attempts should be made to procure stools by pills of colocynth, calomel, and opium, as in R No. 66; but the practitioner will be careful not to *persevere* in the use of calomel, as the system is very susceptible of the influence of mercury in this, and I may add, in all other states of spasmodic disease. Fomentations to the abdomen, the warm bath, and emollient injections containing laudanum, will contribute materially to a speedy and successful result.

When the bowels are once freely moved, the pain, which had previously perhaps been excruciating, quickly subsides. A return of the disease, so much to be dreaded, is to be guarded against by the constant use of some aperient medicine. The

draughts Nos. 27 and 28 are well adapted for this purpose.

4. One of the most distressing states of disease which the physician has ever occasion to witness, is that of ILEUS; but happily it is very rare. The complaint usually begins with the ordinary symptoms of colic, and is perhaps, in the first instance, relieved by the means now recommended. Continuing to recur however, the time at length arrives when purgative medicine ceases to have its effect. Day after day passes without relief to the bowels, which remain painful and *distended*. Vomiting succeeds, and stercoraceous matter is sometimes rejected. The distress of the patient under these circumstances can be equalled only by that of his friends and medical attendants, and his release from suffering is all that can be desired. Life is often protracted however in this state of disease to a painful extent, and the mind in many cases continues clear up to the last moment*.

Dissection will generally unfold in a satisfactory manner, the source of mischief, but there is considerable variety in the circumstances which will occasion this total derangement in the functions of the bowels. In some very rare cases the canal is rendered impervious by mechanical obstructions,

* Dr. Baillie has described (in the Transactions of a Society for the Improvement of medical and chirurgical Knowledge, vol. ii. page 174) the case of a man who had no evacuation from the bowels for nearly fifteen weeks before his death.

such as intestinal calculi and polypi. More commonly a scirrhus tumour will be found, affecting every portion of the structure of the intestines, and occasioning ulceration of a cancerous character, and *stricture* of the gut. In a third set of cases *intussusceptio* will be observed. Such an appearance indeed is often met with, particularly in children, where no symptoms of obstruction appeared during life; but at other times, as Dr. Baillie has remarked*, so large a portion of the gut passes within another that it cannot be disentangled. It is certainly a curious circumstance, that this state of disease has in one or two cases been removed by the efforts of nature, adhesions being formed, the intussuscepted portion of intestine sloughing off, and being afterwards passed by stool. A distinction has been made between *progressive* and *retrograde* intussusception, but for obvious reasons it can never be applied in practice.

It is worthy of notice, that occasionally, after death by ileus, the intestines have been found, not contracted, but inordinately *distended*. It has hence been conjectured, and with great appearance of reason, that their muscular fibres may, by the overdistention either of fæces or of flatus, become paralysed, as often happens to those of the bladder of urine from a similar cause.

The last source of ileus which it is necessary to mention is chronic inflammation and general thick-

* Morbid Anatomy, p. 173.

ening of the peritonæal coat of the intestines. This I have seen in two cases to produce all the symptoms of ileus, without any constriction of the intestinal canal in a particular part.

It is very seldom that ileus is recovered from. It arises, we have seen, in most instances, from local causes, obviously unsusceptible of relief; but in those cases where it depends upon a more general disturbance in the intestinal functions, the disease, before it assumes a decided character, has probably attained a height which will baffle all the resources of medical art. The remedies which have been chiefly resorted to with the view of overcoming the obstruction, after the failure of purgatives, are, dashing cold water upon the extremities, injections of tobacco-smoke, or of tepid water in large quantity, and the exhibition of crude quicksilver.

It is hardly to be expected that a disease which in its early stages has resisted a *well-directed* course of medicines, should yield in its latter periods to such bold but unscientific treatment.

CHAP. V.

WORMS.

Notice of the several Varieties of intestinal Worms——The Lumbricus——The Tænia——Ascarides——Symptoms occasioned by them——State of the System, and of the intestinal Canal, leading to their Formation——Theory of the Generation of Worms——General Principles of Treatment——Varieties of anthelmintic Medicines——Mode of their Operation.

THE presence of worms in the intestinal canal carries with it such decided evidence of the existence of disease, that it has from the earliest ages been a constant object of anxiety in the world, and a favourite subject of investigation with medical authors. Hippocrates and Galen have written concerning worms, and in our own times the attention of many distinguished pathologists has been directed to the same inquiry. With all this, it is singular how little is really known concerning them, which may illustrate their origin, or direct us in our methods of treatment. It is true indeed, that their varieties and every thing relating to their *natural history*, has been fully and ably detailed; but to the practitioner in physic

these are mere objects of *curiosity*, which may claim attention in an hour of leisure, but are wholly useless as applied to practice. That which to him would be desirable—a knowledge of the general pathology of worms, of the state of body in which they originate, of the symptoms which they *immediately* excite, and of the extent to which they influence the production, or modify the symptoms and progress, of other diseases,—is, it must be confessed, still involved in very great obscurity. Yet these are points which I am well persuaded will be found in practice of essential importance, and the investigation of which appears to require only patient attention. I cannot doubt that the subject will one day receive that *full* investigation which it merits.

The intestinal canal in man is infested by five different kinds of worms; *viz.* the *ascaris lumbricoides* or *lumbricus teres*, the *ascaris vermicularis* or common *ascaris*, the *trichuris*, and two varieties of *tænia*. Of these the *trichuris* and the *tænia lata* are so rare as not to require a detailed notice in an elementary work. Our attention may be confined, therefore, to the three varieties well known under the familiar appellations of the round worm, the tape worm, and the thread worm. In treating of them, I shall briefly allude to such circumstances only in their history as appear susceptible of practical application.

1. The *lumbricus teres*, or round worm, resembles in its general aspect the common earth worm, but

there are many points of difference between them, as well in their external appearance as in their internal structure*. It is from twelve to fifteen inches long, and infests principally the jejunum and ileum. It sometimes ascends to the stomach, and has been known to have been taken out by the mouth. A few instances occur of its being *solitary*. In the generality of cases, however, there are at least two; and occasionally thirty or forty have been found together. They are much more common in the intestines of children than in those of persons full grown, or advanced in life. In fact, they are rarely met with after fifteen years of age.

2. The *tænia*, or tape worm, is frequent in this country, both among children and adults. The worm is often very long, extending in many cases to twenty or thirty feet. It occupies the upper part of the intestines, and feeds on the chyle. It is commonly imagined to be solitary, and has from this circumstance been called the *tænia solium*. This is not, however, strictly the case. The detached joints of this worm have the appearance of gourd-seeds, and it has hence received the name of the vermes *cucurbitinus*. It has been supposed that each joint possesses a kind of independent life, but this notion is altogether unwarranted.

* The reader will find these fully detailed in Dr. Baillie's *Morbid Anatomy*, p. 194. For the anatomy of intestinal worms I beg also to refer to Dr. Hooper's Paper on the subject, in the *Memoirs of the London Medical Society*, vol. v.

3. *Ascarides*, or thread worms, are about half an inch in length, of a yellowish white colour, and possessing a very quick motion. Their true domicile is the mucus and thin fæces of the rectum and colon. From this they sometimes wander, and are found in the vagina and about the thighs. Mucus is probably the food by which they are nourished.

The symptoms occasioned by worms are often very indistinct. Their general characters are those of dyspepsia, irregular action of the bowels, and nervous irritation. I am not aware that it is possible to distinguish between the symptoms occasioned by the round and tape worm. It can only be stated generally, that the former produces symptoms of greater intensity, and being so much more generally found in children than the *tænia*, may commonly be suspected at an early period of life. In adults, on the other hand, affected by symptoms of worms, the presence of *tænia* is rendered probable.

Children who are troubled with worms complain of a gnawing uneasy feeling about the stomach, which is removed, or diminished, by eating. The appetite is deranged and variable, often more than ordinarily voracious. The belly is hard and swelled. There is picking of the nose, hiccup, disturbed sleep, and grinding of the teeth. The countenance acquires a peculiar character (smooth and livid), not easily described, but well known to those who have the care of children. Irregularity of the pulse, a slow remitting fever, and emaciation, are also observable in

some cases. The irritation which worms occasion in the delicate constitutions of children has frequently brought on symptoms marking an affection of the brain and nervous system, such as giddiness, a dilated pupil, and epileptic fits.

Nothing perhaps more strikingly characterizes the presence of worms than certain *anomalous* symptoms, not observed in other diseases, or not accompanied by those which under common circumstances would appear along with them. A short dry *sympathetic* cough, or pains in the thorax without corresponding dyspnœa or affection of the pulse, are among the most unequivocal symptoms of worms which I have ever witnessed. In like manner I have seen worms occasion every symptom of peritonæal inflammation, with the exception of buffy blood. The difficulty of making an accurate diagnosis between the symptomatic *nervous* affections brought on by worms, and genuine hydrocephalus has long been acknowledged. In many cases, I presume it to be quite impossible, the two diseases existing together, and probably standing in the relation of cause and effect to each other. Worms will not only *produce* other diseases, but they will serve to modify the symptoms of such as may accidentally arise. This I have frequently noticed in the case of hooping cough. It appears, therefore, difficult to assign any limits to the degree of constitutional disturbance which worms may occasion.

There can be no doubt that worms frequently exist in the intestines of adults (and even sometimes

in children) for a very long time without giving rise to the least uneasiness. In this way only can we account for the extraordinary length which the tape worm has frequently attained. In many cases the first notice of the complaint which the patient has, is the passing of some portions of the worm by stool. I have seen a person from whom they dropped on any exertion of walking. In other instances adults having worms suffer some of the inconveniences usually attendant on dyspepsia or colic. It is not often that the nervous system sympathizes at an advanced period of life.

Ascarides seldom occasion any thing more than local uneasiness,—a constant, often intolerable itching about the anus and pudenda, with a sense of heat in the parts, tenesmus, and slimy stools. These uneasy sensations almost always come on towards evening, and prevent sleep for several hours. Although *ascarides* do not produce much constitutional disturbance, yet they have been known to give rise to itching of the nose, restlessness, headache, giddiness, and some symptoms of dyspepsia. They are easily got rid of for the time by some bitter or oily injection.

I have already had occasion to remark how little is known regarding the state of the general system, and of the intestinal canal in particular, which leads to the formation of worms or encourages their lodgment. They are commonly met with in persons of weak, enfeebled, or irritable habits; and therefore prevail much more extensively in children than

in adults, in women than in men. Yet many persons in the prime of life are subject to worms who have no obvious marks of general weakness about them. Further, it cannot be doubted that a weak state of the digestive organs is that which principally leads to the production of worms; and this, as we shall presently see, is an object of the first importance with a view to treatment. The disposition to form worms, when once begun, is with difficulty got rid of. In some habits it appears to be almost unconquerable, and this I have observed to apply more particularly to the case of *tænia*.

There is nothing in all pathology more obscure than the *origin* of intestinal worms. The theory which ascribes them to ovula which are taken into the body along with the food and drink, and which find a nidus in the mucus and imperfectly assimilated food of a weakened intestine, might be supported if we found such animals in other situations. But this is not the case: they are incapable of existence for any length of time, except within a living animal body. Another supposition has therefore been started, that they are formed independent of ova, from matter contained in the intestines, having previously no regular organization. This idea however is contrary to all analogy in the production of animals, where any satisfactory opportunity of investigating the subject exists. The origin of intestinal worms therefore is still involved in great difficulties, and probably will not soon have any satisfactory light thrown upon it.

The treatment in worm cases has usually been conducted upon very empirical principles. The only object sought has been the expulsion of the worms, and this has in many instances been effected by medicines which have a tendency at the same time to weaken the action of the stomach and intestines, and thus to increase the disposition to form them.

It would be tedious and useless to enumerate all the *anthelmintic* remedies which have been recommended even upon high authority. Some of them are simply drastic cathartics, such as colocynth, scammony, gamboge, calomel, and jalap. These medicines, in spite of their debilitating effects, are certainly of great importance, and it will be right in all cases to commence the treatment with some mixed purgative powder. That which operates briskly and which brings away most mucus will answer the best. The legitimate reason indeed for exhibiting active purges, is to free the intestinal canal from that load of mucus in which the worms burrow, which is thrown out perhaps in some measure as a defence against them, but which in its turn interferes seriously with the process of digestion, and prevents the due action of tonic remedies.

The second class of anthelmintic medicines includes the oils, fixed and volatile, especially castor oil and oil of turpentine. They have been supposed to operate by blocking up the respiratory pores of the worms, but this theory can hardly be supported. The oil of turpentine, first recom-

mended by Dr. Fenwick of Durham, in 1810*, is undoubtedly the most certain of all the means we possess of directly removing worms. The full dose (in which it may *safely* be given even to children) is six drachms, in milk, or mixed in water either by means of mucilage or honey. It generally produces an intoxicating effect that quickly passes off. The *tænia* seldom or never resists it. The student will remember that this is of all worms the most difficult to remove. The round worm possesses great sensibility, and is very easily got rid of, and hence it is that such a variety of medicines have been found useful in its cure.

The third class of vermifuge medicines includes those which are bitter, acrid, or astringent, and which may be imagined to act either by a direct effect upon the worm, or more probably by virtue of some tonic property. Of this kind are the *artemisia santonicum* or worm-seed, the male fern root, the *spigelia marylandica*, and *geoffræa inermis*.

Lastly, there are certain anthelmintics admitted into common practice, whose operation it would be difficult to explain on any ascertained principle, such as the *dolichos pruriens*, tin powder†, strong

* Medico-Chirurgical Transactions, vol. ii. page 25.

† The student will cautiously refrain from exhibiting the *filings* of tin, which have been known to prove highly irritating and deleterious. Even the tin powder is a medicine of very questionable safety.

brine, and assafoetida. Some powerful drugs have been recommended with the view of *poisoning* the worm, such as tobacco, arsenic, and hellebore. The remedy however is here worse than the disease.

Too much stress has undoubtedly been laid on the administration of these *direct* vermifuges. Practitioners seem to have lost sight of those greater principles which should regulate their treatment, and which are fairly deducible from the views formerly taken of the *habit* of body in which worms appear. The principal object should be to strengthen the system generally, and the digestive organs in particular; and to excite that energy in the constitution which may enable the intestines to expel the worms, and to *resist* their subsequent formation. The means by which these ends are to be obtained are the same which apply in ordinary cases of dyspepsia. The diet of the patient is carefully to be regulated. Digestion is to be promoted in languid habits, by the use of bitters and stimulants. A regular action of the bowels is to be kept up, and accumulation prevented, by small doses of rhubarb, in combination with the extract of camomile. The general system is to be strengthened by daily exercise in the open air, by the cold bath when the season permits, and partly too by the use of some preparation of steel.

CHAP. VI.

INFANTILE FEVER AND MARASMUS.

*Diversity of Views which have been taken of infantile Hectic
——General Character of the Symptoms——Circumstances
under which it occurs——Exciting Causes——Extensive
Influence of Derangements of the Stomach and Bowels——
Predisposing Causes——Prognosis——Appearances on
Dissection——Principles of Treatment in infantile Fever
and Marasmus.*

IN all systems of nosology *atrophy* or emaciation has been considered as a disease comprehending under it a great variety of species. In practice, however, it can never be viewed but as a *symptom*, referable to some ulterior cause, and never of itself leading immediately to treatment. Of all the species of atrophy which have been described, there is none so common, or so uniform in its accompanying symptoms, as that which occurs in early life. The general wasting of the body is then attended with fever of a slow remitting kind, which being an equally prominent feature of the complaint, has in many cases given a name to it. The student will accordingly

find the disease described in different works under a variety of names, according to the views which have been taken of it:—infantile hectic, infantile remitting fever, worm fever, atrophïa infantilis, tabes mesenterica, mesenteric fever, diseased mesenteric glands, marasmus. All authors have agreed in acknowledging its close connexion with a disordered condition of the abdominal viscera, either structural or functional; and as it is strictly a *chronic* disease, this is obviously the right place for entering on its investigation. The title which I have preferred is that which is now commonly adopted in this country. In its early stages, while fever gives the disease its character, it is natural also that it should give it its name. At a more advanced period, particularly when *structural* derangement of the abdominal viscera has supervened, it is usual to call it marasmus; but the denomination is of course of trifling importance if the true nature and causes of the disease are well understood.

The following may be taken as a general outline of the symptoms of this complaint. It makes its advances very gradually, manifesting itself by irregularity in the bowels, and slight daily accessions of fever, during which the patient is drowsy. The appetite is variable, the tongue often unaffected, but the pulse is præternaturally quick. In the intervals of the paroxysms the child appears perfectly well. After a time, varying from one to three, or even four weeks, feverish symptoms come on, of a more violent kind, perhaps lasting for several days, during which

the cheeks are flushed, the skin is exceedingly hot and dry, and the pulse a hundred and forty in the minute. There is also very often delirium.

Digestion appears now to be perfectly at a stand. The food passes off without undergoing any change but what results from its exposure to heat and moisture. The fæces are altogether devoid of their natural smell and appearance. The appetite is so totally destroyed, that for many days toast and water, or the juice of an orange, constitute the whole nourishment. It is not to be wondered at, that under such circumstances emaciation should take place, and even go on rapidly. The child loses all spirits and strength, and refuses to be moved from the bed. There is a very striking symptom of the complaint too, which all authors have noticed,—an incessant picking of the skin of the lips and face, and fingers, apparently connected with their dry and rough state.

The presence of so much disease, if unchecked, still more if aggravated by improper management, brings in its train consequences of even a more formidable character. In some cases the brain and nervous system particularly suffer, and there come on symptoms so closely resembling those of genuine hydrocephalus, that it would be a waste of time to attempt a diagnosis between them. I am well aware that after death in these cases water is not always found in the ventricles of the brain; but the student who has paid attention to the remarks formerly made

on encephalic diseases, will not be diverted by this circumstance from the view now suggested of the nature of the symptoms.

At other times the brain is unaffected, and the violence of the disease falls upon the abdominal viscera. There is pain in the bowels, more or less constant, often very acute, and causing the child to keep his legs continually drawn up towards the belly. The lips are of a deep red colour, the angles of the mouth beset with small ulcers, or the whole lip divided by fissures. The bowels are variable, though commonly relaxed. The abdomen gradually enlarges, and feels full and tense, while the other parts of the body waste. Emaciation indeed goes on in this state of the disease very rapidly and extensively, and gives a well-marked character to it. The cheeks fall in, and unless flushed with fever, are of a marbly whiteness. The nose appears lengthened; the eye glassy and sunk in its socket. The same whiteness is observable over the whole frame, and the superficial veins are therefore more than commonly distinct.

It is an object of importance to determine under what circumstances this peculiar combination of symptoms occurs, for by this we shall be led to form a just estimate of the causes and general pathology of the affection. It *never* occurs to children at the breast, where the mother is healthy, and the milk abundant, but they often suffer from it, where the milk of the mother is insufficient for the support of

the infant. It requires but little acquaintance, however, with infantile remitting fever to know that it is after weaning that it chiefly prevails, and that its cause is to be found in improper feeding, and consequent bad digestion. From the moment the child is taken from the breast it becomes exposed to it. It may be supplied with food unfitted for its age, though otherwise wholesome; with food unwholesome at all ages. Its nourishment may be given too thick or too thin,—too frequently or too rarely,—too much or too little in quantity. It is very difficult for an adult (at least without experience) to form an accurate notion of what is fit for the stomach of a *child*. But of this we may be sure, that whatever is given to the child that is not digested, may justly be considered as sowing the seeds of subsequent disease. If not quickly discharged from the body by diarrhœa or vomiting, it injures by slow and often imperceptible degrees the digestive organs, *depraves* the humours, weakens the general habit, develops the scrofulous taint, brings on in some cases worms, and in the end, remitting fever, diseased glands, and a fatal marasmus. A thorough conviction of this should be impressed on all those who are in any manner intrusted with the management of children.

But while I am thus advocating the extensive influence which derangements of the stomach and bowels have in the production of infantile hectic and its consequences, I am not insensible that other causes are also to be taken into consideration. It appears to me indeed that modern pathologists are

perhaps rather *too exclusive* in their opinions concerning the origin of this disease. It cannot, for instance, be overlooked, that it is in the period of dentition that this disorder in many instances first manifests itself. The disturbance which difficult dentition produces in the infant constitution is often extreme, leading to general feverishness, hydrocephalus, convulsions, peripneumony. Its influence upon the abdominal viscera is equally apparent in the disposition which it gives to diarrhœa. That it may serve as an *accessory* cause to genuine remittent fever, by injuring the process of digestion, cannot, I should suppose, be doubted. In like manner, it is very common to find the most unequivocal symptoms of *marasmus* supervening on hooping cough. In some cases I have seen these connected with *worms*, and disappearing when they were expelled, but it cannot thereby be argued that the *marasmus* was owing to the worms. It is more consonant to sound pathology to consider them both as *effects*, depending on general derangement of the digestive organs, and therefore removed by the same treatment. Whether the constitutional irritation brought on by hooping cough and painful dentition be of itself sufficient to induce remittent fever, without the intermediate stage of disturbed digestion, is a question very difficult to decide. It probably may be so, considering how much in the pathology of this disease depends on the higher degree of irritability in the infant than in the adult frame. The notion of an *idiopathic* hectic was entertained by John Hunter, and has since been revived, but it is difficult to reconcile it

with commonly received facts. In the predisposition to infantile fever we are not to neglect the influence of a scrofulous or naturally delicate habit, and perhaps more depends upon this than is often imagined. How else can we explain the fact, that among so many thousand children who are improperly fed, a small number only are attacked by infantile fever? Such a weakened habit is in some instances the consequence of a poor diet, bad air, and scanty clothing; but the disease prevails also among children in the first ranks of society.

Infantile hectic proves in many cases very obstinate, and in no small proportion fatal. The chance of recovery varies with many circumstances which hardly admit of precise detail; such as the natural strength of constitution, the time which the disease has lasted, and the attentions of those about the patient. In its early stages, it is not difficult of cure; but when, commencing gradually, it has at length come to disorder the whole system, it requires constant and *close* attention to ensure the safety of the child. It frequently subsides for a time, and then recurs with even increased violence, not merely from irregularities in diet, but at a moment perhaps when the greatest attention is paid to diet and regimen. Under the best management indeed, infantile remittent fever occasionally proves fatal, and that without any structural derangement. In such cases it appears that the constitution sinks under the exhaustion consequent upon long-continued excitement. On dissection the bowels have sometimes

been found greatly distended, sometimes more than commonly empty.

When the disease is more rapid in its progress, it is not uncommon to find, on examination after death, extensive ulceration of the mucous membrane of the bowels, with or without disease of the mesenteric glands. Sometimes the only morbid appearance has been enlargement and ulceration of the mesenteric glands, of a scrofulous character. This circumstance probably has induced some pathologists to describe an affection having its *primary* seat in those glands, and Dr. Pemberton has been at pains to *distinguish* such a disease from infantile remitting fever*. It is far from my wish to distrust an opinion supported by such high authority, but I have never from actual observation satisfied myself of its correctness.

That there exists a primary chronic inflammation of the *peritonæum*, attended with hectic fever and emaciation, I am well persuaded, and the peculiarities of this form of marasmus will be found described in the Medico-Chirurgical Transactions†. It appears to occur only in scrofulous habits, and to have for its diagnostic symptoms excessive tenderness of the abdomen, paroxysms of acute lancinating pain, and after a certain time, the evacuation by stool of very large quantities of a thick white matter wholly different both from the usual appearance of fæces, and from

* Treatise on the Diseases of the abdominal Viscera, p. 194.

† Vol. xi. p. 258.

the slimy stools tinged with bile which accompany the common form of infantile hectic. On dissection the viscera of the abdomen are found united together into one undistinguishable mass. The mucous membrane of the bowels appears ulcerated through in various places, and communicating freely with the thickened and ulcerated peritonæum. The matter observed within the abdomen corresponds perfectly with that passed during life by stool. The disease appears to be uniformly fatal.

The principles of treatment in infantile remitting fever are now, and have long been well ascertained. To establish a good digestion, to allay that morbid irritability which prevails in the whole system, and to resolve mesenteric obstruction, are our primary objects, in accomplishing which we have recourse to aperients, tonics, narcotics, and deobstruents, either separately or combined, according to the state of the patient and stage of the disease. It is easier however to lay down indications of cure than to carry our views into practice. The fretfulness of the child, the irritability of the stomach, the perverseness of attendants, unite with the natural obstinacy of the disease in opposing the most serious obstacles to our success. In the treatment of all diseases attention to detail is useful, but here it is *indispensable*.

Calomel is often resorted to as a *panacea* in this complaint, and under judicious regulation it is of infinite service, both as aperient and alterative;

but if given in too large doses, or too frequently, or when the stomach and whole system are labouring under high irritation, it will only aggravate the evil. It must always be employed with great caution, and its effects *carefully* watched. Where the disease is recent, and the strength not much impaired, it may be given advantageously in full doses along with scammony, under the old form of the *pulvis basilicus* (R. No. 67). When very high febrile excitement prevails, it will be advisable to substitute the blue pill with ipecacuanha (R. No. 68). A moderate action on the bowels may be kept up during the day by small doses of rhubarb, in combination with the sulphate of potash, as in R. No. 69; but the student will remember that active purging is in most cases far from being desirable. It tends to weaken the stomach and bowels, and therefore impedes the great object, a return to healthy digestion.

Where much irritability prevails, advantage will be derived from some of the mild narcotics. Three grains of the extr. conii may be added to the preceding draught, or that No. 52 may be exhibited. When the paroxysms of fever are less severe, it will be right to commence the use of a slight tonic, such as the infusion of calumba or cascarilla (R. No. 70), in which some gentle aperient may, if necessary, be dissolved. Where we have reason to believe that the mesenteric glands are becoming affected, half a grain of calomel should be given every night.

It is unnecessary to say that the most scrupulous attention must be paid to the regulation of diet. It should consist chiefly of farinaceous food, but a small quantity of plain-dressed animal food may be allowed when the age of the patient permits it*. Wine is hardly ever required. When the strength of the system has been a little recruited, gentle exercise in the open air will contribute materially to recovery. Change of air is very advisable where it can conveniently be obtained.

This very imperfect sketch of the treatment to be pursued in infantile fever and marasmus, is intended only to impress upon the mind of the student how many objects must engage his thoughts, and how essentially necessary in the management of all the diseases of infantile life is attention to minutiae.

* It may be right to mention that genuine infantile hectic has been observed to *commence* as late as the ninth or tenth year of life.

CHAP. VII.

ABDOMINAL HÆMORRHAGE.

*Varieties of abdominal Hæmorrhage——Hæmatemesis——
Passage of Blood by Stool——Their Causes, and Mode of
Treatment——Hæmorrhoids, or Piles——a functional and
structural Disease——Causes of Piles——Symptoms oc-
casioned by them——Treatment.*

IN the present chapter I propose to direct the attention of the student to hæmorrhage as it occurs from the stomach and intestines. The former has been well denominated hæmatemesis. The term hæmorrhoids, or piles, is appropriated to that form of the disease where hæmorrhage takes place from vessels on the verge of the rectum; but to the flow of blood from the intestinal canal generally, no appropriate designation has ever been given*. The term *entirrhœa* may perhaps with propriety be applied to it. In all cases the blood escapes from the minute vessels ramifying on the mucous surface of the bowels. The peculiar disposition of mucous membranes to

* The absurd names of *hepatirrhœa* and *catarrhexis* hardly merit a revival.

the effusion of blood has been already exemplified in the case of epistaxis and hæmoptysis. The principle is equally well illustrated in the phænomena of abdominal hæmorrhage; and it will be a chief object with me to point out under what circumstances of disease, either in the system generally, or in the abdomen in particular, the mucous expansion of the alimentary canal becomes so disturbed in its function that hæmorrhage takes place from it. An affection of this kind is sometimes primary and idiopathic, arising from accidental causes, such as severe horse-exercise, or a blow on the stomach; but it is chiefly a consequence of different kinds of functional disease in *other* organs, of which the following are the most important.

1. Vomiting and purging of blood occur in the first place, symptomatic of general febrile disease, of a highly *malignant* or typhoid character. Under such circumstances they are usually associated with petechiæ, and a *dissolved* and putrid state of the blood; and constitute but a part of the symptoms which mark that very peculiar and most formidable state of the nervous and vascular systems. I have seen them usher in the attack of small pox, as well as of idiopathic *petechial* fever. It is unnecessary to say that such symptoms indicate the greatest danger, and are seldom, if ever, recovered from.

2. Hæmatemesis, with which entirrheæ frequently concurs, has long been known to be a complaint of young unmarried women, between the ages

of fifteen and five-and-twenty, more especially such as are of a full plethoric habit. The matter rejected is seldom pure blood. It rarely coagulates, and should rather be characterized therefore as a morbid secretion of the stomach *tinged* with blood. This hæmorrhage is scarcely attended with danger, and in many instances, even though profuse, is unaccompanied by any signs of debility. It has been observed to last for a great length of time uninfluenced by medical treatment, and to yield spontaneously. In a large proportion of cases it is unquestionably connected with, and *probably* dependent upon, a deranged state of the uterine functions, more particularly amenorrhœa. In some instances the vomiting even seems to be *vicarious* with the menstrual discharge.

3. Hæmorrhage from the stomach occurs, in the third place, along with costiveness, colic, and other marks of simple functional derangement of the *bowels*. In this and the following varieties, the discharge is often of pure blood, and is succeeded by faintness, a feeble pulse, and other alarming symptoms. The complaint has not unfrequently been mistaken for hæmoptysis, from which, however, it may always be distinguished by accurate inquiries. It occurs to young females, sometimes with, sometimes without irregular menstruation; and to elderly persons of both sexes. It is commonly preceded by languor and oppression about the præcordia, cough and dyspnœa, headache, vertigo, and disturbed sleep, a dulness of the eye, and feeble pulse. Constipated

bowels, however, appear to be the *leading* feature of the complaint. The fæces when brought away are unnatural in colour, consistence, and smell.

4. Hæmorrhage from the stomach and bowels sometimes proceeds from disease (chiefly organic) of the liver, and is here referable to the difficulty experienced in the transmission of blood through the vena portæ. These cases of hæmatemesis are generally attended with dropsy, and a swelled state of the veins of the abdominal parietes. The discharge of blood is often one of the immediate forerunners of death; and I have noticed, that on dissection nothing is observed which can lead to a knowledge of the *immediate* seat of the hæmorrhage.

5. Hæmatemesis and entirrhœa, lastly, are to be traced in a few instances very distinctly to disease of the spleen. This organ may then be felt more or less enlarged; and the discharge of blood from the stomach is complicated with epistaxis, and other marks of irregular action of the vascular system generally. The intimate connexion subsisting between the spleen and stomach by means of the *vasa brevia* will sufficiently explain the manner in which the intestinal hæmorrhage occurs.

The treatment of these different varieties of abdominal hæmorrhage will depend on the nature of the exciting cause, and the habit of the patient. In young women it is often useful to take away blood by the arm, and to repeat this evacuation occasion-

ally, according to the urgency of the symptoms. Purging is adapted to almost every form in which the affection occurs, and provided the strength of the patient is but little impaired, full purging may be safely resorted to. Where the liver is diseased, and the constitution injured, the bowels may be simply unloaded by castor oil, or gentle doses of Epsom salts. In a few cases it may be necessary to have recourse to astringents. The mineral acids, alum, and the combination of kino and opium, are those upon which our chief reliance may be placed.

The hæmorrhoidal flux occupied an important place in all the old systems of physic. It was believed to be a salutary provision of nature, a special effort of the *vis naturæ medicatrix*, for the advantage of the constitution. The sudden suppression of it, therefore, was highly dreaded. These notions have passed away, and piles are now considered as a painful and disagreeable complaint, arising in most cases from local causes, the cure of which should never be delayed.

It is a curious circumstance, that pathologists are not yet agreed regarding the true nature of hæmorrhoidal tumours. According to some, they are varicose expansions of the veins of the rectum. The more general, and doubtless the more correct opinion is, that these tumours are formed by blood extravasated under the mucous coat of the rectum, and that the cyst of the tumour consists of this

membrane rendered tense by pressure. Hæmorrhoids have been divided into the external and the internal, the blind and the bleeding; but these distinctions are of little use in practice, and of no importance whatever in pathology. The only division of the disease which has any practical bearing, is into the functional and structural, or, in other words, the *accidental* and *permanent piles*. Whatever notion may be entertained regarding the *essential* nature of hæmorrhoidal tumours, all authors agree that in cases of long standing their contents coagulate and become solid, their coats increase in thickness, and they resemble pendulous excrescent tumours in other situations in the body.

Hæmorrhoids vary very much in size and form. Some are hardly larger than a pea, while others exceed a hen's egg in size. The symptoms which they occasion may be divided into such as occur in accidental piles (which are obviously referable to the same condition of the body which produces the tumours), and such as attend permanent piles (as plainly referable to their bulk and mechanical inconvenience). Accidental piles are frequently attended with a sense of heat and pain at the extremity of the rectum and in the loins, headache and giddiness, flatulence, and not uncommonly marks of general feverishness, such as dryness of the mouth and fauces, scanty and high-coloured urine, with a frequent desire to void the urine and fæces. The evacuation by the bowels is painful, and very often occasions the tumours to bleed. In many

cases they inflame, sometimes without any obvious cause, but more usually from becoming strangulated by the sphincter ani. The pain which they then create is often extremely acute.

The permanent *organized* piles produce in many instances a degree of inconvenience which interferes most seriously with the active duties and comforts of life. Even when altogether *internal*, they impede by their bulk the passage of the fæces, give rise to severe pain whenever the bowels are emptied, and gradually bring on that train of evils which necessarily follows long-continued constipation. The extent of hæmorrhage from them is also such as to occasion in many cases considerable uneasiness. This state of the disease arises, it may be presumed, from a continuance of the same causes which lead to the accidental, or acute hæmorrhoids. With these alone the physician is concerned. When the internal membrane of the rectum has become permanently thickened, the disease can be relieved only by surgical operation. In this place, therefore, my attention will be directed exclusively to the consideration of the causes and method of treatment of the primary or *accidental* hæmorrhoids.

1. Piles are frequently a symptom of general febrile excitement. They arise from over-indulgence in food of a too stimulating quality, and the free use of heating wines, such as Champagne. They occur, therefore, along with common febrile symptoms, and for the most part yield spontaneously on a recurrence to a mild and unirritating course of diet.

2. Piles arise, in the second place, from any circumstance that impedes the regular action of the great intestines, so as to cause *straining*. They may concur, therefore, either with costiveness or diarrhœa. A confined habit of body is that which of all others is most disposed to hæmorrhoids. Hence it is that they are so frequently met with in persons of *sedentary* occupation. But the continued use of aloes and other purgative medicines has been often followed by piles. It is fairly to be presumed, therefore, that straining at stool from any cause forces out blood into the cellular membrane at the extremity of the rectum constituting an hæmorrhoidal tumour.

3. Piles appear to be connected in some cases with the local irritation occasioned by horse exercise, and the long continuance in a particular posture. It is a common complaint, therefore, with cavalry soldiers, and mail-coach travellers. Lastly, hæmorrhoids have been traced to causes impeding the free return of blood by the great abdominal veins. Hence they occur symptomatic of pregnancy, and a diseased state of the liver.

The treatment of hæmorrhoids may be discussed under the two heads of curative and palliative. When the disease arises from a *heated* state of the system it will be proper to give ten grains of antimonial powder every night on going to bed, with a gentle dose of some neutral salt the following morning. The diet should consist entirely of vegetables

and puddings. When it depends upon a naturally costive habit of body, the regular use of some mild aperient, which operates gently and without straining, is indicated. Sulphur has long been recommended for this purpose, and may be given in combination with the electuary of senna, as in R No. 71. Regular walking exercise is often indispensable to that due action of the great intestines which is the surest preservative against piles.

The local or palliative treatment consists in the employment of leeches and cold lotions, when much inflammation is present, with confinement to the horizontal posture ; the careful return of the tumour within the sphincter ani, whenever it has been prolapsed ; and the application of an astringent ointment (R No. 72), where the membrane of the rectum is much relaxed, with profuse bleeding. It is difficult to define in what cases, and on what principles, such stimulating substances as Ward's paste (an electuary composed of black pepper, fennel seeds, and elecampane root) prove useful ; but experience has fully demonstrated their power. Under the same circumstances small doses of balsam of copaiba (R No. 73) have been employed with advantage. Injections of cold water have frequently proved serviceable.

When piles and hæmorrhage from the rectum become complicated with a thickened, or otherwise diseased state of the coats of the mucous membrane, the efforts of the physician must be confined to keep-

ing the bowels in a *natural* state, and to the avoiding of all such causes as may aggravate the sufferings of the patient. The daily passage of the fæces may be assisted by injections of warm water.

I beg to refer to surgical works, more especially to Mr. Abernethy's observations on hæmorrhoidal diseases*, for the most efficient mode of removing the disease in this its most aggravated form.

* Abernethy's Surgical Works, vol. ii. p. 231.

CLASS IV.

CHRONIC DISEASES OF THE URINARY
AND UTERINE SYSTEMS.

CHAP. I.

LITHIASIS.

Objects of Investigation in this Chapter—Depositions from the Urine, primary and secondary—Lithic Diathesis—Circumstances tending to induce or increase it—Depositions of oxalic Acid and of the cystic Oxyd—Phosphatic Diathesis—Principles of Treatment in calculous Affections generally—where the lithic Diathesis prevails—where the phosphatic Diathesis prevails—Application of these pathological Views to the Determination of Questions connected with the Operation of Lithotomy.

THE frequency of calculous disorders, and the distress which in their confirmed stages they create, have long made them an object of attention to surgeons; but it is only of late years that the *general pathology* of these affections (with which the physician is chiefly concerned) has been pro-

secuted with any degree of scientific precision. Scheele in 1776 paved the way to a correct understanding of the subject by the discovery of uric acid; but it was reserved for Dr. Wollaston in 1797 to complete the groundworks of this branch of medical inquiry by his masterly analysis of urinary calculi, published in the *Philosophical Transactions* of that year. The investigation has been followed up in this country with equal diligence and success; and the writings of Dr. Marcet*, Mr. Brande†, and Dr. Prout‡, have put us in possession of a number of important particulars, bearing on the formation and pathology of depositions from the urine, which seem well calculated for discussion in an elementary work. It will be my endeavour, in the present chapter, to lay before the student a brief outline of the opinions of these authors, on the general questions connected with lithiasis.

Depositions from the urine are of three kinds: 1. Pulverulent or amorphous sediments; 2. Crystalline sediments, usually denominated sand and gravel; 3. Solid concretions, or calculi formed by the aggregation of these sediments. The same

* An Essay on the chemical History and medical Treatment of calculous Disorders. By Dr. Marcet. Second Edition. 1819.

† Observations on the medico-chemical Treatment of calculous Disorders. By W. T. Brande. (*Quarterly Journal of Science and Arts*, vol. viii.; and in *Phil. Trans.* for 1810.)

‡ An Inquiry into the Nature and Treatment of Gravel, Calculus, &c. By Dr. Prout. London. 1821.

In the outline here given of calculous affections I have chiefly followed the views and arrangements of this last author.

pathological doctrines are applicable to each of these forms of urinary deposition, which obviously can never be understood without a knowledge of the constituent parts of the urine, and of the changes which that fluid undergoes in the body, from agents which either act upon it chemically, or by laws peculiar to vitality. It is this which gives to the consideration of lithiasis an interest so much greater than could have been expected to belong to it. The inquiry, in fact, will be found to have a bearing upon *general disease*, as much as upon the deranged operations of the urinary organs, and to connect itself intimately with some of the most intricate points in physiology and pathology. It affords a remarkable instance of the application of chemistry to the theory and practice of physic; and though it would be highly unphilosophical to maintain that the history and treatment of calculous disorders depend entirely on chemical principles, yet it cannot be forgotten that before this branch of science was cultivated, our notions of lithiasis were vague and incorrect, and that now, the best pathologist, unacquainted with animal chemistry, is continually exposed to the risk of error.

The most general principle which can be taken as the foundation of our reasonings concerning lithiasis is the division of calculous deposits into *primary* and *secondary*, or those which take place when the disease *first* develops itself, and after it has subsisted for a considerable length of time. The primary consist of the lithic acid, either simple,

or in combination with ammonia, and of the oxalic acid in union with lime; the secondary, of the phosphoric acid combined in various proportions with lime, magnesia, and ammonia. The former derive their chief character from the acid which they contain, the latter from the earthy matters. The one are principally formed in the kidney, the other in the bladder. Hence the distinction into primary and secondary deposits is nearly equivalent to *acid* and *earthy*, *renal* and *vesical*; but in the present state of our knowledge all these views of the subject require to be taken with certain limitations, nor do I propose them except as the basis of *elementary* instruction.

1. Under the general denomination of a *lithic* diathesis, we may arrange, with Dr. Prout, all those states of the system in which lithic acid is either contained in the urine in more than its natural quantity, or in which the urine acquires a peculiar disposition to *deposit* it, even though its quantity is not morbidly increased*. These conditions of the urine may exist independently of each other, but in most instances they are present at the same time, constituting the *perfect* lithic diathesis. *Sediments* from the urine, having a lithic character, are usually of a brickdust or pink colour, though this is liable to some variation. They consist of the lithate of ammonia. The *crys-*

* This disposition is given to the urine by a very slight excess of *free* acid,—either the phosphoric, sulphuric, or carbonic.

tallized deposits, commonly called *red gravel*, are lithic acid nearly pure; and many calculi of a large size are composed of the same material.

Several circumstances tend to produce an excess of lithic acid in the urine, and these it will be proper to enumerate. 1. The presence of fever and of inflammatory action in some part of the system, is always indicated by *lateritious* or pink sediments of the urine, and the deeper the colour the more severe in general are the symptoms. The latter are especially observed to occur in rheumatic, gouty, and hepatic affections. The pathological connexion of gout and gravel has long been noticed, and their mutual dependence on predominant acidity in the system was a favourite speculation with many old authors. This theory may certainly be considered to have received some degree of support from the inquiries of modern pathologists. That excess of lithic acid, however, which is the consequence of *fever*, can hardly be viewed as a source of the chronic calculous deposits which it is my object now to investigate, and I pass on, therefore, to notice those states of the body independent of fever, which lead to such a result.

2. Of these the most commonly witnessed are simple errors in diet, which may be, either the mere excess of wholesome food; or the partaking of food decidedly unwholesome or peculiarly difficult of digestion; or such as uniformly disagrees

with a particular stomach; or lastly, the indulgence in food at unusual hours. This principle in pathology points out the intimate connexion that subsists between gravelly and *dyspeptic* complaints, to which almost every thing that is important in the treatment of the disease has a reference. It may perhaps be asked in what *manner* these derangements of the digestive organs come to increase the formation of lithic acid by the kidney. The question is one of very considerable difficulty. It is not exactly known whether the kidney partakes of the diseased action or not. Dr. Prout is disposed to consider that it does not; and that the mere circumstance of imperfectly assimilated matter being brought in the course of circulation to the kidney, is sufficient to lead to the formation of a more than ordinary quantity of lithic acid.

3. Irregularity in exercise, great fatigue, depressing passions of the mind, inordinate mental exertions, all tend in like manner to produce turbid urine from excess of lithic acid. From these remarks it will appear that the tendency to lithic deposition may often be *acquired* (like gout) by indolent habits and excess in eating and drinking. But there is still another view of the subject which requires to be taken, before it can be appreciated in its several bearings.

4. The disposition in the urine to superabundant lithic acid is sometimes *natural*, and not unfrequently *inherited*. Under such circumstances it is

usual to see it deposited in the shape of *crystalline grains*, and there is every reason to believe that these are in most instances formed in the kidney. Such a morbid state of the urine often continues for a great length of time, without occasioning any symptoms of peculiar severity; but sooner or later the constant deposition of crystals of lithic acid in large quantity, ends in the formation of a calculus. It is a singular circumstance, that in certain countries and districts of countries, the disposition to lithic deposits from the urine is particularly strong, and calculus therefore is considered as *endemic* in such situations. A remarkable instance of the kind occurs in an extensive tract of this country, of which Norwich may be taken as the centre, in which more calculous cases occur than in the whole of Ireland or Scotland. The water, diet, temperature, and peculiar habits of the district, have each, in their turn, been accused as the exciting cause, but the circumstance is still unexplained*.

2. Very little is known regarding that state of body in which depositions of oxalic acid take place. It appears that in this diathesis there is little or no sand voided, and the urine is generally clear. The calculi which contain it are probably formed in the first instance in the kidney, though afterwards increasing to a considerable size in the bladder. Dr.

* See Dr. Prout's Inquiry, page 133; and Dr. Marcet's Essay, page 28.

Prout has shown* from the examination of *alternating* calculi, that the deposition of oxalic acid is both preceded and followed by that of lithic acid, from which it may be inferred that they are of the same general nature. The oxalic acid is formed in the kidney instead of the lithic, where combining with the lime naturally existing in the urine, it lays the foundation of those rough, hard, and very troublesome concretions, to which the term *mulberry* calculi is usually appropriated. It is a curious circumstance, that in the district of which Bristol may be considered as the centre, this species of urinary calculus is more frequent than any other; at any rate, that it much exceeds its usual relative proportions, as observed in other parts of the kingdom†.

3. The *secondary* deposits from the urine are commonly *amorphous*, but occasionally also they appear *crystallized*. The former consist chiefly of the phosphate of lime, but with this is generally to be found some portion of the triple phosphate of magnesia and ammonia. The latter consist *invariably* of the triple phosphate.

It has long been observed that a deposition of the earthy phosphates is attended with a very peculiar set of constitutional symptoms, differing both in *kind* and *degree* from those which accom-

* Prout's Inquiry, pages 103 and 145.

† I omit the consideration of that deposit which Dr. Wollaston denominated cystic oxyd, on account of its great rarity and the little that is known concerning it.

pany the lithic diathesis. They may be characterized as indicating great derangement of the chylipoietic viscera, with general irritability and debility of the system. Among the most prominent of these symptoms may be noticed nausea, flatulence, costiveness alternating with diarrhoea, the stools having an extremely unhealthy appearance (black, clay-coloured, or yeasty) ; a sense of uneasiness and weakness in the back and loins, a sallow haggard countenance, languor and depression of spirits, coldness of the extremities. The urine in this state of disease is pale-coloured, and more copious than natural. After standing for a short time it becomes opaque, and deposits a copious precipitate of the mixed phosphates in the state of an impalpable powder. It is extremely prone to decomposition, becomes speedily alkaline by the evolution of ammonia, and emits a very nauseous smell. The following appear to be the most important of the pathological principles connected with *phosphatic* depositions.

1. They are very seldom, if ever, formed in the kidney ; nor do they often take place in the bladder without a previous deposite of lithic acid. It has been satisfactorily proved, that very few phosphatic, or white calculi, are to be met with which have not a lithic or oxalic nucleus. Hence it is, that to this species of urinary deposite we apply the term *secondary*. It is not contended, however, by any means, that a *natural* or primary disposition to deposit the phosphates is not *occasionally* observed.

2. The deposition of the phosphates is connected with debility of the whole frame, the result of long-continued dyspepsia or diarrhœa, excessive fatigue, or protracted mental anxiety. It is frequently present at an advanced period of life, and is one of the strongest proofs of the *breaking-up* of the constitution. Whatever may have been the previous nature of the calculus, the phosphatic diathesis always prevails when the patient's general health gives way.

3. Phosphatic depositions are sometimes the result of a long course of alkaline medicines. Mr. Brande has detailed some experiments*, which he considers highly important as showing the danger of administering alkaline remedies where there is a tendency to the production of the phosphates. Dr. Prout, on the other hand, allows that this may occur in some cases, but lays no stress upon it in the pathology of earthy depositions.

4. A disposition to throw down the phosphates is given, not only by these *general* causes, but by many which act *locally* on the urinary organs, more particularly injuries of the back, and irritations about the bladder, kidney, or urethra, when operating without intermission, and for a considerable length of time. That injuries of the back produce *alkaline* urine, is a very old observation, but it was not known until lately that this was merely a symptom of that

* Philosophical Transactions, 1810, p. 143, et seq.

phosphatic *diathesis* which such a cause induces. Hence, too, it is, that the presence of a small uric calculus in the bladder comes at length to produce a decided deposition of the phosphates.

5. It is very seldom, on the other hand, that phosphatic calculi are encrusted by layers of *lithic* acid, and it is argued, therefore, that the phosphatic diathesis is rarely succeeded by any other. Upon this subject, however, the great authorities are not in strict accordance. Mr. Brande asserts that such a sequence may sometimes be observed, more particularly after a free use of acid medicines, given incautiously while the phosphates are in excess. Dr. Prout, on the other hand, maintains confidently that a decided deposition of the mixed phosphates (particularly in advanced life) is never followed by other depositions, and that the few exceptions to this law which have been observed are more apparent than real.

6. The question has frequently been discussed how far depositions from the urine are ever of a *mixed* character. Pathologists are not agreed on this point. Mr. Brande informs us (on the authority of chemical analysis) that cases of mixed sabulous deposit are by no means unfrequent, while Dr. Prout, from an attentive examination of what have been called *compound* calculi, is inclined to believe that such mixtures are very rare. He states* that he has never seen an instance of the pure lithic acid *mixed*

* Inquiry, p. 110.

with the phosphates, nor does he believe such a compound ever existed in nature.

I have now to add a few words respecting the period of life at which calculous complaints occur, and the prognosis which may be formed under the different circumstances in which they prevail. Every one must have observed how liable the urine is at an early age to every species of deposite. This particularly happens in children of delicate constitution and weak stomach. In most cases the deposite is white and consists of the phosphates, but in the very beginning of the complaint it is often lithic. The irritability of habit, however, at this age is so great, that the character of the sand frequently changes with rapidity. From tables which have been drawn up, it appears that nearly *one half* of the whole number of stone cases occurring in this country take place prior to the age of puberty. Of the remainder, a large proportion have their origin in early life; but the constitution being then sound, the general health good, and the calculus small, no symptoms are produced. The next period of life most prone to calculus occurs about the age of forty, when gout begins to make its inroads on the constitution. A calculus previously existing in the bladder will rapidly increase at this period, or a nucleus will now be formed for that of advanced life.

The phosphatic diathesis occurs most frequently in childhood and old age. Where its exciting

causes, however, are strong, it may occur *as an original disease*, even in the prime of life. When the deposition of the phosphates is merely occasional, it is hardly an object of attention ; but if it invariably follows meals, still more if it occurs as *white sand*, subsiding *immediately* to the bottom of the vessel into which the urine is voided, it becomes a serious disorder. When *thoroughly* established in the system it is very difficultly got rid of ; and to this circumstance we may trace the large size which white calculi have sometimes attained, rendering their removal from the body, in neglected cases, hazardous, or even impossible*.

The infinitely greater frequency of calculous diseases in the male than the female sex, as well before as after puberty, has been clearly established. It may be ascribed in part to the shortness of the female urethra ; but some other circumstances probably concur, which have hitherto eluded our researches.

It has frequently been supposed that an accurate acquaintance with the chemistry of urinary deposits would lead to clear and definite views of treatment ; but this notion is founded upon very imperfect observation. The chemical treatment of lithiasis indeed, though much talked of, is, comparatively

* In the Philosophical Transactions for 1809 (p. 303), is an account by Sir James Earle of a phosphatic calculus, sixteen inches in length, and weighing *forty-four ounces*. Lithotomy was performed, but the stone could not be brought away, and the patient died ten days afterwards.

speaking, of but little service. The practitioner who aims at general success, must be guided by pathological considerations of a higher character. He must look to the state of the whole system, and to that of the chylopoietic viscera in particular. He must bear in mind, that while the urine is in its natural state, no deposition from it will take place, or if such has already occurred, that the calculus will not increase in size. His object, therefore, must be to keep the urine as well as other secretions in a healthy condition, and this is to be done, not simply by an acid, or an alkali, but by strict attention to all that can improve health, or ward off disease. The deranged operation of the urinary organs must certainly be broken in upon, in the first instance, by *medicine*, but the effect is to be kept up by *diet* and *regimen*.

1. Where the lithic diathesis prevails, laxatives and alteratives are to be employed so as to promote a due action of the digestive organs; and after them, or occasionally along with them, may be exhibited with advantage some form of alkaline medicine. Five grains of Plummer's pill, or the pill, R No. 20, or in robust habits the more powerful combination in R No. 25, may be given at night, followed the next morning by a Seidlitz powder, or the alkaline aperient No. 74. This plan may be pursued every night or every other night, according to the urgency of the symptoms. Once or twice during the day a tea-spoonful of magnesia may be taken in a glass of soda-water, or the liquor

potassæ in the dose of twenty drops. This last medicine is best given in barley-water, and liquorice assists in covering its nauseous flavour. All alkaline medicines, whether in a pure or carbonated state, are apt, when long persisted in, to disagree with the stomach. They should therefore be *frequently* varied.

Much has been written concerning the mode in which alkalis operate in the relief of calculous disorders. The notion of a *solvent* power so long and so confidently maintained, is now laid aside by the best pathologists, and their use (which none can dispute) is ascribed to their action on the digestive organs; where, either by obviating the formation of acid, or by neutralizing it when formed, they prevent its secretion in the kidney. Dr. Prout considers alkaline remedies as *palliatives* only, allaying irritation, and in the case of magnesia, promoting a laxative operation*. He further gives it as his opinion that *general* remedies (especially purgatives judiciously administered, and never carried to excess) are those upon which reliance is chiefly to be placed.

The remarkable exemption from calculous complaints enjoyed in hot climates, has been frequently mentioned as a hint in practice. It has been attributed to the uniform moist state of the skin; and certainly points out the propriety of attention to

* Medico-Chirurgical Transactions, vol. viii. page 549.

exercise, warm clothing, and perhaps the occasional use of a warm bath.

2. The treatment of those calculous cases where a *phosphatic* diathesis prevails, must vary with the duration of the disease, and the consequent degree to which the general health has suffered. They will often be found to yield to the same remedies as have been already recommended, proving that the two great forms of urinary deposition are much more intimately connected than is commonly imagined. In children and adults, where the general health is little impaired, the occasional use of rhubarb and calomel in moderate doses will prove highly serviceable. In the majority of cases benefit will be derived from *tonic* medicines; and the peculiar advantages of *acids* are equally suggested by chemical and pathological considerations. The mineral acids (sulphuric and muriatic) have been most usually employed, and where they agree with the stomach, they often give a decided check to the symptoms in a few days. *Uva ursi*, bark, and other astringent vegetables, may be had recourse to with the best effects in protracted cases, where the tone of the stomach is weakened and the constitution much reduced. Saline purgatives, active diuretics, and alkaline remedies, must be carefully avoided both with reference to the general and urinary system. Above all, during the presence of a phosphatic diathesis the *mind* is to be set at rest. Absence from care, change of scene, the sports of the country, and regular hours, have an influence upon

the disease quite astonishing, and often prove effectual where medicines have failed.

In every variety of calculous deposition strict attention is of course to be paid to diet; but we can hardly concur with those modern pathologists who have attempted to regulate this also by chemical principles. The excrement of animals feeding solely upon animal matter, contains uric acid in considerable quantity. It has been argued therefore that vegetable food should be preferred where the lithic, and animal where the phosphatic disposition exists. The fact is curious, but the practical inference incorrect. That diet is in every instance to be preferred which agrees best with the stomach.

In the treatment of calculous cases it is necessary to look to the degree of *irritation* prevailing in the system generally, and in the kidney particularly. Opium, hyoscyamus, and other sedatives are often *indispensable*, and in *most* cases they will be found useful auxiliaries. Where there is much pain in the loins, a galbanum or opium plaster may be recommended. If manifest injury has happened to the back, an issue or seton should be had recourse to.

It is hardly necessary to remark that these observations on the treatment of lithiasis are intended to apply to those cases which are strictly *constitutional*, where no actual calculus has formed,

and where no disorganization of the urinary organs has taken place. The treatment of such only is in the hands of the physician; but it will be obvious that the same general principles must apply in every variety and stage of the disease. This may be illustrated by showing how the doctrines now delivered may become subservient to the determination of questions connected even with the operation of lithotomy. It is to be recommended, for instance, without delay, whenever a calculus, no matter of what species, is ascertained to exist in the bladder *before puberty**; and in after-life when the phosphatic diathesis is *fully* formed. On the other hand it may be postponed when the calculus is small, and the lithic disposition steadily present,—provided the patient be in the prime of life, his *general* health sound, and he himself willing to conform to regular living. Under all other circumstances the retention of a calculus in the bladder is to be dreaded, not only on account of present suffering, but the probability of its future increase.

* Children upon whom lithotomy has been performed, are not found to be more liable than others to calculous complaints, at an advanced period of life.

CHAP. II

DISEASES OF THE KIDNEY.

Nephralgia——*Symptoms and Mode of Treatment.*——*Nephritis*——*Abscess of the Kidney.*——*Hæmaturia.*——*Ischuria renalis*——*Its Causes*——*Prognosis*——*Method of Treatment.*

THE presence of a calculus in the kidney is not necessarily followed by distressing symptoms. Instances are recorded where a calculus of considerable size, nay even a large collection of calculi, have been found after death distending the kidney, without any one symptom having occurred which could lead to an idea of disease in the urinary organs. In most cases, however, when a calculus becomes *impacted* in the kidney, suppuration and gradual wasting of that organ takes place. This is generally accompanied by an *obtuse* pain, or sense of weight in the lumbar region, aggravated by exercise, especially by riding on horseback. There is also retraction of the testicles, and a sense of numbness extending down the inside of the thigh on the affected side. The urine is commonly of a deep red colour, depositing either sand or sediment. It is voided fre-

quently, and in small quantity at a time. A person may exist for a great number of years with this affection, without materially suffering in his *general* health; but in most instances it brings on bloody urine, and ultimately proves fatal.

The *retention* of a calculus in the kidney is after all a rare occurrence. Far more commonly, while yet of moderate size, it quits the pelvis of the kidney, and descends into the bladder. There can be no doubt but this has *sometimes* taken place without pain or uneasiness, even where the stone was of considerable size. In the majority of cases, however, the descent of the calculus along the ureter is accompanied by very well marked symptoms, constituting nephralgia, or in common language a *fit of the gravel*. There is a *sudden* attack of very acute pain in the region of the kidney, with violent sickness and vomiting. The pain extends to the groin, and is generally attended by *numbness* of the thigh, and retraction or pain of the testicle. The urine is discharged in small quantity, high-coloured, and often mixed with blood, or with mucus tinged with blood. Dr. Pemberton has noticed, as occasionally accompanying this state of disease, a sympathetic pain on the skin of the abdomen midway between the os ilium and navel, increased by pressure, and in some cases so acute as to arrest the whole attention of the patient.

The distressing symptoms now enumerated are of very variable duration. They usually terminate as

suddenly as they began, marking the moment at which the calculus escapes from the ureter into the bladder. There it remains for a longer or shorter time, when it either enters the urethra, and is ultimately discharged from the body, or begins to occasion some of the symptoms of *stone in the bladder*. In a few unfortunate cases the calculus becomes permanently retained in the contracted portion of the ureter, producing that train of symptoms which usually attends disease of the urinary system, and terminating in disorganization of the kidney, and eventually the death of the patient.

A fit of the gravel has been mistaken for lumbago. It is to be distinguished by the nausea which attends it, by the changes observable in the secretion of the kidney, the affection of the testicle, and the pain continuing unaltered by any variations in the posture of the body. Attention to the same symptoms will serve to distinguish nephralgia from a fit of the colic, with which it is also liable to be confounded.

In the treatment of nephralgia the principles laid down in the last chapter for the relief of the lithic diathesis may be applied, recollecting that here high irritation and feverish action are superadded to the great excess in the formation of uric acid. An active purgative is often of essential service. When the pain is very acute, blood may be taken from the loins by cupping, or even from the arm. The patient should be placed in a warm bath, and a full dose of

opium given every second or third hour, according to the urgency of the symptoms. Starch glysters with laudanum contribute materially to the patient's relief. Stimulating diuretics are to be carefully avoided.

Nephritis, or inflammation of the kidney, may have its seat either in the substance of that organ, or in its capsule and surrounding cellular membrane. The former occurs only as a consequence of calculi retained in the kidney, and wherever met with has I believe always a *chronic* character. The latter has been observed, in a few instances, as an *acute* idiopathic affection, arising from exposure to cold, or severe horse exercise*. The symptoms in no respect differ from those of nephralgia, except that the pulse is here frequent and hard, and the tongue loaded, with other marks of inflammatory fever. The treatment of inflamed kidney must be conducted upon the usual principles. General and local blood-letting, mild purgatives, frequent emollient glysters, demulcent drinks, and the warm bath, are our principal resources. Blisters should of course be avoided. Opiates may be administered where we have reason to suspect the presence of a calculus.

Inflammation of the kidney may subside without any serious consequences; but in most instances where it does unfortunately occur, it terminates in

* See particularly a case by Dr. Turner in the College Transactions, vol. iv. p. 226.

abscess, a lamentable and not uncommon state of disease. Dr. Baillie observes* that no considerable gland of the body is so liable to form abscesses as the kidney. In some cases which he has seen, they appeared to be of a common kind, but the greater number partook of the nature of scrofula. He considers it probable that calculi in the kidney are the immediate cause of the inflammation, which, however, receives its character from the constitution of the patient. The existence of abscess of the kidney may be known by the voiding of pus with the urine, subsequent to, or accompanied by, the usual symptoms of diseased kidney.

A predisposition to ulcerated kidney, and generally to disease of the urinary system, is given by the decline of life. A very large proportion of old people suffer under some morbid affection of these organs. In one it takes the form of calculus, in another of diseased prostate, in a third of irritable bladder, in a fourth of chronic inflammation and abscess of the kidney.

The researches of pathologists, and particularly of Dr. Cheston, have proved the dependence, in many cases, of ulceration of the kidney upon the presence of a stone in the bladder. Dr. Cheston adds, that the sympathy is mutual, and that abscess in the kidney leads, in its turn, to diseased and irritable bladder.

* Morbid Anatomy, page 288.

The complete destruction of one kidney is not necessarily fatal. Where the constitution is sound the other kidney has sometimes enlarged so as to do the office of both, and life has been preserved, and even rendered comfortable, under such circumstances. Occasionally a true *scirrhus* enlargement of the kidney takes place, and though instances are not wanting of such a disease remaining unsuspected during life *, yet, in most cases, it is attended with the voiding of bloody urine, a constant pain in the loins aggravated by the slightest motion, and a lingering death.

HÆMATURIA or hæmorrhage from the urethra, sometimes occurs along with hæmatemesis, and other marks of a general hæmorrhagic tendency. But in the majority of cases it is symptomatic of local disease in some part of the urinary system. It is seldom of sufficient violence to prove hurtful by the mere quantity of blood lost. The prognosis however, and treatment of this hæmorrhage, merge in those of the primary affection, and hardly merit therefore a more specific notice.

If the importance of any disease could be estimated by the survey of a system of nosology, ISCHURIA would stand foremost among the disorders of the human race. Subdivisions of this disease have been made with tedious minuteness, but they are altogether useless in practice. The only species

* See Medical Observations and Inquiries, vol. vi. page 236.

with which the physician is concerned, is the ischuria renalis; a few observations on the history of which, will conclude what I have to offer on the chronic diseases of the urinary system.

Ischuria renalis is a form of disease very rare, in which the functions of the kidneys are suspended, and the urine is retained in the blood. The accompanying symptoms are a dull pain, or sense of weight in the iliac regions, with great anxiety; nausea, vomiting, hiccup, cramps, general irritability and restlessness, or sometimes delirium, lethargy, and coma. It is occasionally attended with a constant desire to void the urine, though the catheter proves that none is in the bladder. The taste of the urine has been discerned in the mouth, and in many instances a remarkably strong urinous smell has been perceptible in the perspiration.

The causes of this affection are various. It seldom occurs except in advanced life. It has been traced to cold in habits of body liable to gravelly complaints. A more common cause of the disease are local irritations in one kidney, operating by sympathy on the other; of this kind are calculi, hydatids, and scirrhus. Lastly, it would appear from the progress of the disease, that it has originated in a variety of cases, from some affection of the brain and nervous system. It is an important pathological fact, that this paralytic state of the kidney is almost always succeeded about the

second or third day by marks of oppression on the brain *. Dr. Heberden indeed relates a case where the retention existed seven days, and the patient recovered; but it has been well remarked by Sir H. Hallford, that a very small measure of urine is sufficient for the exigencies of the constitution, and that it is the *total* cessation of the secretion which is so uniformly fatal.

The treatment of ischuria renalis, as recommended by authors, consists in the employment of the warm bath, of stimulating diuretics, and terebinthinate injections. Opium has been advised, on the principle of some spasmodic stricture existing in the vessels of the kidney. Cupping from the back of the neck, and a brisk purgative, appear more consonant to the suggestions of general pathology.

* See a paper by Sir Henry Hallford on the Necessity of cautious Prognosis, College Transactions, vol. vi. p. 398.

CHAP. III.

AMENORRHŒA AND CHLOROSIS.

Remarks on the general Influence of Disturbance in the uterine Functions——Amenorrhœa——Division of the Disease into Retention——and Suppression——Accompanying Symptoms——Plethora and irregular Determinations of Blood.——Chlorosis and Debility——Causes of retained and obstructed Menstruation——Treatment——Agency of Emmenagogues——Of Dysmenorrhœa.

THE high importance of the uterine functions in the animal œconomy cannot be doubted, and from the earliest ages ingenuity has been taxed to explain them, and to ascertain the extent of their influence both in health and disease. The menstrual flux, the most obvious of the uterine phænomena, has afforded a wide field for pathological discussion; and being a constant object of attention to females, has thus acquired a consequence which fixes it upon the notice of the medical practitioner. Its overflow or suppression are continually adduced as the causes of disease; and in different ways it has become interwoven with the opinions entertained of almost every complaint to which the

female sex is exposed. Before entering on the consideration of the diseases of the uterine system, a few remarks, calculated to place this subject in its proper light, may not be without their use.

The functions of the uterus are veiled in almost impenetrable obscurity, and it is hardly possible for us to reason at all concerning them without falling into error. Much caution, at any rate, is necessary, that the natural bias on our minds in regard to the menstrual flux, does not induce us to impute to it an influence in disease greater than it really possesses; and thus, to withdraw our attention from considerations more general, better ascertained, and therefore more practical. So strongly has the necessity of this caution impressed itself on some late pathologists*, that they have almost been tempted to exclude entirely, from their speculations on the origin of disease, the influence of the uterine system. This view of the subject, however, cannot, as it appears to me, be supported. Every one must admit that there are certain combinations of symptoms (independent of the menstrual discharge), which occur *only* to women, and not to them except at particular periods of their lives. The strictest pathology would authorize us in attributing such phænomena to what constitutes the peculiar feature of that sex and age,—the uterine system. Upon the whole, therefore, I am inclined to think that

* See Hamilton on Purgative Medicines, pages 98, 110, and 126.

the influence of the uterine functions in the production of disease is unquestionable, though fully satisfied, as I shall hereafter point out, that the consideration is of pathological rather than of *practical* importance.

Amenorrhœa is of two kinds; the first where the menses do not begin to flow at the period of life when they usually appear in other women; the second, where, having occurred and continued some time, they are interrupted. Nosologists distinguish these two states of the disease by the terms amenorrhœa emansionis, and suppressionis. In common language they are called *retention* and *suppression* of the menses. In neither a pathological nor practical point of view do these species of the disease differ essentially from each other. Their accompanying symptoms are nearly alike. They arise, as far as we can form a judgment on the subject, in a great measure from the same causes, and their treatment is to be conducted on the same principles.

There is considerable diversity in the period at which the menstrual flux first appears, depending partly on the climate, and partly on the habit of the individual. In this country and in healthy constitutions, it commonly shows itself about the age of fourteen; but the delay of some months, or of one or two years, is not to be viewed as a source of uneasiness. Retention of the menses for even a longer period than this is not always to be considered as a

disease. It is compatible with a state of robust health. Notwithstanding this, the anxiety of mothers frequently prompts them, under such circumstances, to solicit the advice of a physician. It is scarcely necessary to say that these cases are on no account to be interfered with. A practitioner could hardly flatter himself that he understood better than nature the management of the female constitution.

Circumstances, however, are widely different when about the age of seventeen a young woman who has never menstruated begins to droop in her general health. The symptoms which accompany this state of the uterine functions are very various, but they may be characterized generally as indicating a weak and irritable habit. Those of dyspepsia and hysteria predominate, and the system sinks into that state which nosologists have very aptly designated by the term *chlorosis*. The phænomena which present themselves in this condition of body, will soon be described. In the mean time I may notice all that appears to be known regarding the causes of *retained* menses. In almost every case which requires medical assistance, this symptom will be found associated with some unequivocal marks of *scrofula*. It is frequently followed by, or connected with *consumption*, and it must therefore be viewed in a great measure as depending on the *scrofulous* habit of body.

Suppressed or obstructed menstruation may be either acute or chronic. The acute or accidental

obstruction arises from cold, or perhaps some strong mental emotion, is attended with slight feverish symptoms, and is for the most part relieved in a short time by a gentle diaphoretic. Chronic obstruction of the menses, on the other hand, is a complaint of a more serious kind, and is accompanied by two very different trains of symptoms.

In one variety there are marks of plethora, or of irregular distributions of blood. Sometimes the head is affected, and constant excruciating headache with giddiness on stooping, and paroxysms of epilepsy or mania, are the urgent symptoms. At other times the stomach principally suffers, and there occur loss of appetite, flatulence, fits of dyspnoea, and a very disturbed state of the alvine evacuations, but without corresponding emaciation. In a third set of cases the arterial system is that on which the violence of the disease falls, and the leading symptoms are hæmorrhagies from the stomach, nose, or lungs, with a frequent and often full pulse, a flushed face, and a constantly loaded state of the tongue. The pathologist will remark with surprise to what an extent the symptoms may go in this state of disease without any cause for immediate alarm, and how long they will continue without serious injury accruing to the constitution. He will frequently have occasion too to notice that the same anomalous train of symptoms occur, not merely with complete obstruction, but with *irregular* states of the menstrual secretion.

In the other variety of chronic obstruction of the menses, we may observe all the most unquestionable evidences of a *weakened* state of body. It is to this very remarkable combination of symptoms, (seldom if ever witnessed except in young women under these circumstances of the uterine function,) that nosologists have given the name of CHLOROSIS. It has received this appellation from the appearance of the skin, which loses its natural mixture of red and white, and acquires a pale, sallow, or sodden aspect, generally attributed to a diseased secretion of the sebaceous glands, and sometimes, though I believe very unjustly, to diseased liver.

The eyes are *pearly*, and appear sunk in their orbits. A dark circle is particularly apparent beneath them; the lips lose their colour; there is a degree of anasarcaous puffiness over the whole body. The eyelids are swelled in the morning, and the patient complains of a weight in the loins from œdematous accumulation there. There is great languor and listlessness, and aversion to all kinds of motion or exertion. Pains of the side, loins, and legs, are complained of. The least exercise occasions fatigue and accelerated respiration, frequently amounting to dyspnœa. This is particularly apparent on going up stairs. A sense of suffocation or tightness across the chest too is frequently noticed; and these symptoms render it probable that some accumulation of serum has taken place also in the air-cells of the lungs.

The heart is liable, from very slight causes, to palpitation and syncope. The pulse is quick and small, or sometimes natural in point of frequency, but *very feeble*. Occasionally there may be observed that throbbing of the temporal arteries which is very common in cases of great general weakness from profuse bleeding. The appetite is bad, often entirely lost, and sometimes strangely depraved. Dyspeptic symptoms are particularly distressing.

The mind sympathizes with this morbid condition of the body. The patient gradually falls into that irritable state when slight and trivial causes produce great uneasiness; when the opening of a door, or the entrance of a stranger, hurries the pulse and aggravates the symptoms. In common language she is *nervous* and hysterical.

This state of things may last for a great length of time,—a twelvemonth or more; sometimes aggravated, but never entirely subsiding. By degrees, if no relief is obtained by the efforts of art or nature, the symptoms occasionally assume a more serious character. Anasarca supervenes, or a genuine hectic is at length developed, and the patient, after a most painful and protracted illness, dies consumptive. More frequently, the disease, in the course of two or three years, wears itself out. The whole train of symptoms denotes a weakened state of the general system and great laxity of fibre. Very little is known regarding the causes of chlorotic amenorrhœa. It seldom originates after

the age of twenty-three. It may sometimes be traced to circumstances which obviously debilitate, such as want of air and exercise, bad food and bad air; but it often takes place where these causes cannot operate; as in the upper ranks of life. It is a frequent complaint among the domestic servants in this town soon after their arrival from the country, and it may reasonably be attributed to the sudden change from the active employment and pure air of a farm-yard, to the close confinement and heated atmosphere of a London kitchen.

The treatment of amenorrhœa is to be guided altogether by a consideration of the character of the attendant symptoms, without reference to the state of the uterine functions. To the practitioner, therefore, it is a matter of indifference, whether the obstructed menstruation is the *primary* cause of all the symptoms, or only one in the general series. Such an opinion, indeed, is in direct opposition to a long-established theory in medicine. It was at one time a prevailing belief that certain drugs possessed a peculiar property of exciting the uterine vessels to action, and the treatment of amenorrhœa was thus reduced to a fixed principle. Juster notions of pathology have banished the tribe of emmenagogue medicines. It is now acknowledged that the uterine functions can be restored only by measures possessed of *general* efficacy, and that when the system returns to a healthy condition, menstruation, which is a healthy action, will in most cases naturally follow. To bring the system into this desirable state we must,

in some cases, have recourse to lowering, and in others to *tonic* remedies. Symptoms must be closely watched and treated as they rise. Unbiased by theory, the student must learn that in this disease, more perhaps than in any other, he may require to take blood one day while he supports the system the next.

When obstructed or irregular menstruation is attended with marks of strength of the general system, and local determinations of blood, great benefit is derived from a small bleeding at the arm. It is in fact, in many cases, the only means in our power, of relieving the urgent symptoms. A hip-bath is useful with the view of diffusing the circulation generally, and of taking off any spasmodic constriction or chronic inflammatory action which may exist in the vessels of the uterus. Low diet, saline purgatives, but above all regular exercise in the open air, will contribute to a favourable result. I have witnessed in several cases, that nothing tended so effectually to assist the constitution in throwing off this disease, as change of climate.

Many cases, however, of obstructed and *almost all* of *retained* menstruation, are attended with those marks of languid circulation and of debility or atony, which we generalized under the title of chlorosis. This state of body demands a very different system of management. If, as generally happens, there are evidences of accompanying disorder in the stomach and primæ viæ, a gentle emetic

or a mild purgative may with propriety be pre-mised. But the great object of treatment is to give tone to the system. Systematic writers add that we are further to attempt to excite the uterine vessels to action.

The first indication is fulfilled by directing moderate exercise, a nourishing diet, change of air, cold bathing during the summer season, and the use of some bitter medicine that may improve digestion, or of a more powerful *tonic*, that may strengthen the constitution generally. A weak infusion of gentian or cascarilla (R No. 70) may be given in the first instance, and the more powerful bitters afterwards, as the tone of the stomach improves. Attention must be paid to secure regularity in the alvine evacuation, and the bitter purgatives combined with myrrh have long enjoyed a high reputation in the treatment of this disease. Five or ten grains of the pil. aloes c. myrrha may be directed every night, or a dose of the tonic aperient pills, R Nos. 51 or 75, twice a day.

Steel possesses the most unquestionable power over this form of constitutional weakness. In no other state of disease, indeed, is its direct tonic virtue so unequivocally demonstrated. Six drachms of the *mistura ferri composita*, with an equal quantity of cinnamon-water, may be given twice a day, and the dose gradually increased. The *pilulæ ferri cum myrrha*, in the dose of ten grains twice a day, may be substituted if this should disagree with the

stomach. The *form* of the medicine may be frequently varied; and as all tonics lose their effects by long continuance, their employment should be *occasionally* suspended. Where great languor and lowness of spirits prevail, camphor and the volatile alkali, as in R No. 76, are serviceable.

Of the influence of *direct* emmenagogues I have already expressed my total distrust. In cases therefore, where we have succeeded by these means in strengthening the system, and the menses still remain obstructed, time, and those inexplicable changes which take place in the constitution in the progress of life, can, I believe, be alone relied on. But their operation is commonly too slow for the anxieties of parents, and a variety of *stimulating* drugs have been resorted to with the view of *forcing* the uterine vessels to action. Of these the most in repute are the tincture of hellebore, the powder and oil of savine, the tincture of cantharides, galbanum, and the oil of turpentine. That they have occasionally succeeded it would be in vain to deny, but in many cases they disorder the stomach and bowels, and are much better avoided. Electricity has been recommended with the same intention, and has proved useful in a few cases. The cheerful amusements of society, however, have an influence over the actions of the uterus, much greater than what belongs to any means of a more directly *remedial* character.

Dysmenorrhœa, or painful menstruation, is a very common and distressing state, in which medi-

cal assistance is frequently solicited. The pain in the loins is often in the highest degree acute, lasting two, or perhaps even three days. Small portions of coagulable lymph are sometimes discharged along with the menses, which are usually scanty. Dyspeptic and nervous symptoms of an anomalous kind, occasionally attend this state of the uterine function, which is evidently closely allied to that of amenorrhœa. It admits of some relief from a small blood-letting, the hip-bath, sitting over the steam of hot water, ten grains of Dover's powders given at night, and other *relaxing* measures, but in very many cases it recurs with unconquerable obstinacy, and baffles for a time every effort of medical skill.

CHAP. IV.

MENORRHAGIA AND LEUCORRHŒA.

Division of Menorrhagia into Species according to the State of the Uterus—and of the general System—Phænomena of the common or active Form of Menorrhagia—Of passive Menorrhagia—Their Causes and Consequences—Treatment.—Pathology and Treatment of Leucorrhœa.

THE pathology of menorrhagia is very complicated ; and before entering on the consideration of that variety of it, which strictly falls within the province of the physician, I shall attempt to explain under what different circumstances it occurs, and how necessary in practice is a division of it into species.

1. The term menorrhagia is, in the first place, applied both to profuse menstruation, and to actual hæmorrhagy from the uterus*. Menstruation is con-

* I take it for granted that the student is informed of the *physiology* of the uterine functions, and is sensible that the menstruous fluid is not blood, but a peculiar *secretion* from the vessels of the uterus.

sidered as *profuse* either when the quantity is greater than natural, or when the intervals are shorter. This state of the function is sometimes, but by no means always, an object of medical care. There is great diversity in the *quantity* of the menses in different women, in different climates, and in the same woman under different circumstances; and this must be borne in mind when estimating the degree in which menorrhagia exists. Here, as in the case of obstructed menstruation, *accompanying* symptoms must be looked to, and an inordinate flow of the menses is not to be viewed as *disease* unless coupled with pain, fever, weakness, or disturbance of some other function.

2. The discharge of *blood* from the uterus is to be distinguished as it occurs connected, or unconnected with pregnancy. The former opens one of the most extensive and interesting fields of inquiry in the obstetrical department of medicine. It requires, however, a previous survey of the physiology of the impregnated uterus, and is therefore unfitted for investigation in this work.

3. Cases of hæmorrhagy from the unimpregnated uterus admit of an important practical distinction into such as are purely functional, and such as are connected with organic disease of the uterus, more especially cancerous or malignant ulceration about its cervix. Nothing can be imagined more distressing than this latter state of disease. One of the first evidences of it is a gush of blood from the uterus, which

recurs at intervals. In its progress it is attended by severe pains of the loins and thighs, failure of the appetite, extreme weakness, and emaciation. The flooding at length is almost constant, and the patient after the lapse of some months dies exhausted, but with a mind painfully sensible to the miseries of her own situation. Such a case can be relieved only, and that partially, by the internal administration of narcotics (beginning with *cicuta* and ending with opium), and by the use of astringent and anodyne injections.

4. Hæmorrhage from the uterus, strictly functional, occurs in two different states of the general system. It is sometimes attended with marks (more or less distinct, according to the period of the disease) of increased action throughout the body, and is undoubtedly *dependent upon* such a state of constitution. This is the *usual* form in which menorrhagia occurs in the practice of the physician. It may be distinguished by the name of *active* or common menorrhagia, and it is to this variety of the disease that my attention will principally be directed. On the other hand, it *occasionally* is observed in connexion with general weakness. There is here, however, an obvious source of fallacy, to which I shall presently advert.

Lastly, menorrhagia requires to be considered in some degree as a *local* disease, and it will be found to concur with very opposite states of the uterine vessels. It is sometimes the result of local increased

action, independent of any general febrile disturbance. On this principle we explain its being a sequel of frequent miscarriages, and a common complaint among prostitutes. At other times, it is as obviously connected with a morbid degree of relaxation in the uterine vessels. The parts are relaxed to the touch. Instead of the firm feel of health, the uterus gives to the finger the sensation of œdema or flabbiness.

After this enumeration of the several circumstances, both constitutional and local, under which menorrhagia appears, I recur to that form of the complaint in which I have stated that the advice of the physician is most usually sought. The *active* hæmorrhagy from the uterus is attended with fever. It is ushered in by rigors, headache, severe *bearing-down* pains of the loins, followed by a hot skin, thirst, restlessness, and a frequent hard or full pulse. The discharge of blood varies in quantity, but is often very profuse. The same habit of body continuing leads to many symptoms of *debility*—œdematous feet, cold extremities, paleness of the skin, a weak pulse, lassitude on taking exercise, dyspepsia, palpitations, and a sensation of sinking at the pit of the stomach. In this state of *apparent* or febrile debility, the patient may perhaps *first* come under the notice of the practitioner, and he will then often find it difficult to divest himself of the feeling that these symptoms indicate the true nature of the disease, and the necessity of *tonic* medicines. Such cases, however, are very different from those of *passive* or *atonic* hæmorrhagy, and they may commonly be

distinguished from them by tracing the symptoms to their origin, and by some still *lurking* proofs of the existence of feverish action. The tongue perhaps is white, the urine high-coloured and scanty, or there is thirst, and disturbed sleep. These are the symptoms which in such cases should be the guide to our practice.

The genuine *passive* hæmorrhagy from the uterus is a much rarer species of the disease. It occurs only to women in the lower ranks of life, and arises from a scanty and impoverished diet, laborious exercise, bad air, and long watching. I have noticed in dispensary practice, that washerwomen and night nurses who live much upon tea, and undergo great bodily fatigue, are those who chiefly labour under it. Whatever then debilitates the body generally, will, under certain unfavourable circumstances of the uterine system, bring on atonic menorrhagia.

Common or active menorrhagia, on the other hand, has for its exciting causes whatever will increase plethora, and determine the blood with more than ordinary force into the vessels of the uterus. In the upper ranks of life it is brought on by too full living, heated rooms, late hours, and the want of sufficient exercise ;—in the lower ranks, by the abuse of spirituous liquors ; and in both by exposure to cold. Akin to these causes of menorrhagia are those which operate locally,—excess in venery, costiveness, and consequent straining at stool, severe exercise, and even long-continued dancing.

Other circumstances, however, must be taken into consideration in developing the causes of uterine hæmorrhage. It is a very rare complaint with young unmarried women, and it cannot be doubted that frequent child-bearing gives a predisposition to it. It seldom originates even with married women before thirty years of age, but from that time to the period when the discharge ceases altogether, the tendency to it greatly increases. Many women, indeed, who had never suffered from the complaint before, experience it to a greater or less degree at the time of the cessation of the menses. It is well ascertained also, that there exists in some women a *natural* inherent weakness of the uterus, and consequent proneness to menorrhagia.

Functional hæmorrhage from the uterus is not a dangerous disease. When very obstinate, it saps the foundations of the constitution, and induces more alarming complaints; but a fatal event from the mere loss of blood is hardly upon record.

Menorrhagia, when it occurs as an active hæmorrhagy, attended with fever and bearing-down pains, must be combated by *depleting* measures adapted to the violence of the disease. Blood-letting is often necessary. If there is much pain in the loins, we should direct cupping in that part to the extent of ten or twelve ounces. Saline purgatives should be given so as to ensure an open state of the bowels. A light spare diet is to be enjoined, and confinement to

a bed or sofa. The bed-clothes are to be as light as is consistent with comfort. Napkins dipped in ice-cold water are to be applied to the lower parts of the abdomen. Cold injections holding in solution alum, or the sulphate of zinc, may be thrown up three or four times a day ; or in slighter cases the parts may be frequently moistened with a sponge dipped in some astringent lotion.

If the stage of active excitement requiring these vigorous measures should have passed by, before assistance is required, the practitioner will be careful to regulate his treatment on the same principles, while he proportions his means to the strength of the patient's habit. Saline draughts, containing Epsom salts and antimonial wine, will now be required, and the same attention must still be paid to diet and *regimen*. If all marks of feverish action have subsided, the mineral acids, which are both astringent and tonic, will be found eminently serviceable. They are commonly given in the infusion of roses as in R No. 77. A proportion of Epsom salts may be added, so as to act gently on the bowels. In severer cases, we must attempt to check the hæmorrhage by more powerful astringents, as alum (R No. 78), or the cerussa acetata (R No. 36). Decoctions of pomegranate or oak-bark, containing alum, should be frequently used in the form of injection. If the discharge be so profuse as to create alarm for the safety of the patient, she should be freely exposed to cold air, and a lump of ice applied within the vagina.

To diminish the general irritation that often prevails in the passive forms of uterine hæmorrhagy, opium may be advantageously given. Five drops of tinct. opii may be added to the draught No. 77. When the constitution is much enfeebled, the decoction of bark and acid (R No. 79) is of essential service.

An increased secretion of mucus from the vagina constitutes LEUCORRHŒA, or fluor albus ; a very frequent, troublesome, and obstinate complaint. In many respects its pathology is associated with that of menorrhagia. It frequently accompanies profuse menstruation, and is one of the most constant attendants upon the natural decline of the menstrual discharge. In many cases it appears also to depend upon the same causes. Slight symptoms of feverish excitement attend it, or sometimes the more obvious marks of *plethora*. Occasionally, but I believe more rarely, it is connected with general weakness, as indicated by paleness of the skin, a weak pulse, and œdema. Lastly, it depends in certain cases on *local* irritations.

The treatment of leucorrhœa must of course vary with the character of the accompanying symptoms. Where the system is heated, antimonial diaphoretics, laxatives, and cupping-glasses to the loins are indi-

cated; the cold bath, tonics, and astringent injections, where it is debilitated. In some cases the checking of the discharge might possibly be prejudicial. In many this fear is groundless, the disease continuing, in spite of every effort.

CHAP. V.

HYSTERIA.

Marks of an hysterical Habit——Phænomena of the hysterical Paroëxysm——Prognosis——Diagnosis——Pathology——Dependence of Hysteria on the State of the nervous System——of the uterine Functions——of the Stomach and Bowels——Treatment——Influence of Antispasmodics.

OFTEN as I have had occasion to animadvert on the inconveniencies and difficulties of nosological arrangements, in no instance, perhaps, are they more strikingly displayed, than in that before us. Hysteria indeed has in all ages proved a fertile theme of nosological controversy. So various are its symptoms, so widely extended and so obscure its pathological relations, that the very assigning to it a situation, presupposes some *theoretical* notions concerning its nature, which have been and may still be disputed. I have here placed it among the diseases of the uterine system, following in this respect the opinions (or perhaps what some might call the *prejudices*) of an early period of medical science. The objections, however, which may be urged

against this arrangement, will be of little moment if the student derives his notions of the disease from the pathological views which will be taken of it, rather than from the division of the work in which they happen to be discussed.

The symptoms of hysteria may be subdivided into such as mark the hysterical habit, or constitute the hysterical p̄aroxysm. The hysterical habit is characterized by great irritability both of body and mind. There are sudden fits of laughing and crying, without any cause, or from causes wholly inadequate; the patient crying where she ought to laugh, and laughing where she might be expected to cry. There is great dejection of spirits, a causeless dread of evil, a hurried manner, and a variable temper. With this morbid condition of the mind are associated many symptoms of bodily derangement—dyspepsia in all its shapes, the *globus hystericus* or sensation of a ball rolling about in the stomach and gradually ascending to the throat, costive bowels, fits of difficult breathing, palpitations, a peculiar kind of nervous headache commonly called the *clavus hystericus*, and a copious flow of *limpid* urine.

These symptoms afford, of themselves, sufficient evidence of the hysterical disposition, but in all severe cases the more striking characters of the disease are developed by the occurrence of paroxysms of *convulsion*. These are often very violent, evincing a force that overcomes all opposition. The

trunk of the body is writhed to and fro, and the limbs are variously agitated. The fists are closed so firmly that it is difficult or even impossible to open the fingers. A frequent symptom is that of beating with the closed fist upon the breast violently and repeatedly. There is an involuntary utterance of shrieks and screams, with fits of laughing and crying, sometimes accompanied with or succeeded by an obstinate and distressing hiccup. In this state the patient continues for a longer or a shorter time; often for twenty-four hours, though of course with occasional *remissions*.

More or less suddenly, and frequently with repeated sighing and sobbing, the patient returns to the exercise of sense and motion, generally without a recollection of the circumstances of the fit. For some time afterwards she appears quite spent, and lies stupid, and careless of what is going on around her.

Formidable as these symptoms appear to the bystanders, they are attended with no real danger, at least for the time. Where the hysterical habit, indeed, is very strong, the fits gradually acquire more and more of an *epileptic* character, until at length (though probably not until after two or three years), the disease merges altogether in epilepsy. It cannot therefore surprise us, that in many cases the diagnosis of epilepsy and hysteria should be a matter of considerable difficulty. I believe it to be often impossible. The symptoms

which are chiefly to guide us, are the globus, the variable mind, the flow of limpid urine, and the degree of coma subsequent to the convulsive paroxysm. But it is not only from epilepsy that hysteria is difficultly distinguished. There is hardly a disease in the whole nosology of which it has not imitated the symptoms, and that with surprising accuracy. I have seen hysteria accompanied by constant vomiting, by a complete ischuria renalis, by the most obstinate colic, by all the symptoms of genuine asthma. Authors have described in like manner an hysterical jaundice, an hysterical mania, an hysterical diabetes. These circumstances require to be borne in mind with reference to *prognosis*. It is hardly necessary to apprise the student, that the danger in these cases is to be estimated, not from the violence of the leading symptoms, but the character of the *habit* in which they occur.

Such are the phænomena of the *hysteric passion*. Its pathology is complicated and difficult, for in attempting to investigate its causes we must direct our attention *equally* to the nervous system generally, to the uterine functions, and to the state of the stomach and bowels. It is only by taking this enlarged view of the subject that we can arrive at any adequate explanation of its varied appearances, or reconcile the conflicting opinions of authors of acknowledged merit.

1. Hysteria is scarcely ever observed except in females whose nervous system is peculiarly irritable.

This is by no means a necessary concomitant of a *delicate* frame of body. It frequently exists along with a full *plethoric* habit, and is brought on by a life of dissipation and inactivity, late hours, and heated rooms. At other times it is manifestly connected with a want of tone in the general system; and hysteric symptoms, therefore, occasionally accompany the convalescence from acute diseases, and co-exist with severe diarrhœa, and such chronic ailments as produce much constitutional debility. In this *irritable* state of the nervous system (whether dependent on plethora or weakness) the hysteric paroxysm once excited, is often renewed by very slight causes, which under other circumstances would have produced no effect, such as mental emotion, imitation, or fatigue. In fact it becomes by habit rivetted in the body.

2. The connexion of hysteria with morbid states of the uterine system has given a name to the disease, and it is undoubtedly an important consideration. This may be illustrated in a variety of ways. Cases of hysteria in males have been recorded, but upon no very good authority. The complaint is in truth *peculiar* to the female sex. It commences at the age of puberty, and seldom occurs after the thirtieth year of life. Its attack frequently coincides with the menstrual period. It chiefly prevails among unmarried, or barren women. It accompanies chlorosis, amenorrhœa, menorrhagia, and all irregularities of the menstrual function.

3. Hysteria is intimately connected with disordered states of the stomach and bowels. The nervous system may be irritable, the menstrual discharge may be obstructed, but it often requires a fit of dyspepsia, or a very costive state of the bowels, to develop the hysteric paroxysm. Of late much importance has been attached to this feature in the pathology of hysteria, and by some it has even been supposed to supersede every other. This confined view of the subject, however, is neither consonant to general pathology, nor is it borne out by the results of experience. A practitioner who trusts to purgatives alone will *sometimes* succeed,—but he will occasionally fail, where another of more enlarged views is happily successful. In the treatment of hysteria, all the views which I have now taken of the disease merit an equal share of attention.

The first object is the relief of the patient during the actual paroxysm of convulsion. Little, however, can be done at this time. Where the attack is very severe and long-protracted, the patient young and plethoric, and the pulse full, blood may safely be taken from the arm; but we must not anticipate much benefit from the measure even under these favourable circumstances. Its good effects are for the most part only slight and temporary. Cold water to the face, volatile alkali to the nose, and æther to the temples, are often equally effectual. Turpentine or assafoetida glysters have sometimes succeeded in cutting short the fit. The power of swallowing being

usually lost, or, at any rate, the teeth firmly clenched, the attempt to give medicines internally during the fit is commonly fruitless. This must be reserved for the interval of the paroxysms, at which time they may be resorted to with a fair prospect of advantage. The *indications* of cure are to allay the excitability of the nervous system, and to improve digestion. The state of the uterine functions may in some cases also become an object of attention.

In full plethoric habits the *irritable* state of the whole frame is best combated by purging, low diet, and regular exercise. Purgatives have been found very useful in the practice of Dr. Hamilton*, who has noticed that in this disease the bowels are often so *torpid* as makes it necessary to give them in full and frequently repeated doses. He observes that the first purgatives may appear to aggravate the symptoms, but a perseverance in their use removes a mass of accumulated fæces, and with it the general irritation.

In languid habits *tonics* are called for,—myrrh, steel, and bark ; a course of mineral waters ; regular hours, cold bathing, horse exercise, and a generous diet. In every state of body in which hysterical symptoms arise, advantage is derived from the use of the fœtid gum-resins, assafœtida, galbanum, and sagapenum ; as also from castor, musk, camphor, valerian, æther, ammonia, and the essential oils of amber

* See Hamilton on Purgative Medicines, page 131.

and cajuput. The utility of these medicines in the slighter forms of convulsive disease is unquestionable, and has procured for them the generic appellation of *antispasmodics*. The mode of their operation is altogether unknown to us. They are all stimulating or heating drugs, possessed of strong sensible qualities. They may be exhibited in various forms of combination. The *pilulæ galbani compositæ* in the dose of five grains three times a-day, is an approved and elegant formula. In the Appendix I have inserted specimens of the more common antispasmodic juleps, which may be given at the option of the practitioner (R Nos. 80, 81, and 82).

Dyspeptic symptoms constitute so essential a part of the hysteric character, that the physician must naturally direct much of his attention to them. Flatulence so generally prevails, that the aromatic distilled waters, which possess in so eminent a degree *carminative* qualities, will be found very serviceable.

The remarks already offered on the treatment of primary dyspepsia preclude the necessity of my entering more at large on this branch of the medical treatment of hysteria. I have only further to add that some management of the *mind* is here necessary. A woman can often by a little exertion resist the tendency to the fit, and by well-timed *firmness* on the part of the practitioner, the same desirable object may sometimes be obtained.

CHAP. VI.

OVARIAL DROPSY.

Varieties of ovarial Disease——Phænomena of dropsical Ovary——Appearances on Dissection——Treatment.

MORBID anatomy has proved that the ovaria are liable to several kinds of disease. They have been found greatly enlarged, and converted into a firm white mass, feeling like cartilage, more or less intersected with membranous septa. At other times one or both ovaria become ossified. Still more frequently this organ is converted into a fatty substance, enclosing teeth and hair, the whole being surrounded by a firm membrane. The theory of the production of these latter tumours is very obscure, and has given rise to some curious speculations*. But these subjects can hardly be considered proper for investigation in this work. The symptoms which attend such diseased conditions of the ovarium are quite unknown, and can never therefore become an object of practice. I allude

* See Baillie's Morbid Anatomy, page 410.

to them only in so far as they suggest the probability of there being *functional* diseases of the ovarium, of which these disorganizations are the results. Pathologists have long entertained the suspicion that such affections exist, and certain diseases of the uterine system (hysteria in particular) have been by some ascribed to this cause. The opinion can never, from the very nature of the subject, be viewed except as a plausible conjecture.

Omitting then these topics, as being too imperfectly known to admit of discussion, I proceed to the consideration of the only diseased state of the ovarium which is ever likely to become an object of *practical* interest,—I mean that of dropsy. The symptoms that mark the early stage of dropsical ovary are very obscure, nor can the existence of the disease be ascertained, until it has made such a progress as to have formed a swelling at the lower part of the belly. This swelling is attended with a sense of *weight* in that part, and according as the right or left ovarium is affected, the tumour and hardness are perceptible in one or other groin. When the disease is somewhat more advanced, fluctuation may generally be felt, sometimes nearly as distinct as in common ascites, but more usually obscure. Probably this depends on the degree of tenacity in the contained fluid.

The great mark of distinction between ovarian dropsy and common ascites, is to be found in the little disturbance which the former occasions in

the constitution. The appetite remains good. There is no thirst, and the urine continues to flow as in health. Neither weakness nor hectic are produced, at least in the early stages of the complaint, and the menses are unaffected. So little does the disease influence the general health, that instances are on record of a woman becoming pregnant and bearing a child to the full time, while one ovary was enormously distended by dropsy. When the disease has reached a certain point, it produces many very unpleasant symptoms from its mere bulk,—difficult breathing, amounting often to what is commonly called orthopnœa, dyspepsia, costive bowels, swelled legs, with cramps, and a varicose state of the veins.

The progress of dropsical ovarium is subject to great variety. Instances have been met with where it proceeded rapidly, and proved fatal in two years. Much more commonly its advances are very slow, and life can often be preserved under it with tolerable comfort for many years *. Very few cases are recorded of a cure of this disease either by the efforts of art or nature. It would appear as if the absorbents of the ovarium were hardly capable of being excited to the degree of action necessary for the removal of the fluid. In one instance only have I ever known such absorption to occur, but the relief

* A short time ago I saw an elderly woman who had had ovarian dropsy for thirty years. She died without having been ever tapped.

here was only temporary. The ovarium again filled, and the patient ultimately died. Death takes place sometimes from *exhaustion*, and sometimes from inflammation supervening on the sac in consequence of tapping.

On dissection the ovarium is found converted into a capsule, often of enormous size, and of variable thickness, adhering in most cases, but not universally, to the peritonæum lining the abdominal parietes. It is sometimes so large as to occupy almost the whole cavity of the abdomen. In other cases, instead of a single bag, the ovary is converted into a congeries of cysts, either separate or communicating with each other by considerable openings, and containing at times fluids of different kinds. Occasionally tumours of a firm texture are found attached to the inner surface of the capsule.

The fluid of a dropsical ovary is almost always mucilaginous, and of a bluish or sometimes chocolate colour. Without experience in the disease it is difficult to give credit to the statements which have been published of the *quantities* of fluid observed in different cases. On the 9th January 1822, I drew off after death, from a single thin membranous cyst, eighty-two pints. I have heard of a hundred and twenty pints having been drawn off at once during life. The rapidity with which the fluid accumulates varies in different cases. In the Medical Communications (vol. ii. p. 123) will be found an interesting

case of dropsy of the ovarium, in which nine hundred and sixty-four pints were discharged in the course of one year, at fourteen tapplings, making on an average a daily secretion of nearly two pints and a half. The disease lasted five years, during which time the patient was tapped forty-one times, and two thousand seven hundred and eighty-six pints of fluid were taken from her. In general it will be found, that when twenty-five or thirty pints are accumulated in the sac, the uneasiness from distention becomes so great that paracentesis is rendered necessary.

Of the causes of dropsical ovary very little is known. It does not appear that impregnation gives any peculiar disposition to it. Among the recorded cases many occurred among unmarried women. It has commenced as early as the twentieth year of life; but it is most frequent after thirty. Some cases may possibly have their origin in *inflammation* of the ovarium. This opinion is supported by the fact, that in several instances the disease has been attributed by the patient to a contusion or fall.

Little need be said on the subject of treatment. Mercury has been tried, and found to be useless. The operation of tapping affords the only effectual relief which it is in our power to hold out. A *radical* cure of the disease has been attempted by making a large opening in the cyst, with the view of inducing inflammation and adhesion, as in the

case of hydrocele. Very powerful reasons, however, have been urged against this operation by Dr. W. Hunter*, and it appears in every respect unadvisable.

* See Medical Observations and Inquiries, vol. ii. page 41.

CLASS V.

CHRONIC CONSTITUTIONAL DISEASES.

CHAP. I.

SCROFULA.

General Outline of the Pathology of Scrofula—Marks of Scrofula in the healthy Conditions of the Body—Characters of scrofulous Disease—Structures affected by Scrofula—Causes of Scrofula—Hereditary Predisposition—Acquired scrofulous Diathesis—Causes leading to the Development of scrofulous Disease—Principles of Treatment—Importance of pure Air—Sea Bathing—nourishing Diet—Influence of tonic, alkaline, and other Medicines.—Treatment of scrofulous Inflammation of the lymphatic Glands.

THE pathology of scrofula is altogether *sui generis*. It does not assimilate with that of any other known disease. It is moreover a subject of very great difficulty. A full investigation of it presupposes an acquaintance with almost all forms of disease, and of

the modifications of which they are susceptible. Its extent is unbounded. To the physician and the surgeon it is equally an object of attention. Whether we regard the symptoms, the causes, or the treatment of diseases, or view them as external or internal, acute or chronic, a knowledge of the several doctrines connected with scrofula is indispensable to their complete elucidation. It may be considered, in fact, as the most important of those great links which bind together the infinitely varied ramifications of medical inquiry.

Interesting as scrofula is to the *general* pathologist, it cannot be denied that it is more especially essential in the inquiries of the surgeon. The principal forms of scrofulous disease fall under his cognizance, and from them the chief characters of the affection are necessarily derived. These considerations will point out how little calculated is this investigation for a work so brief in its plan, and so confined in its design, as the present. We may even go further, and say, that a subject of such extent and difficulty is ill suited for elementary works generally, and that the student should at first content himself with a superficial examination of it. Such at least is all that will here be attempted.

Scrofula is usually designated by nosologists as a morbid state of the *lymphatic glandular* system, but our notions of the affection would be very imperfect were we to view it only in this light. On the other hand, some have altogether denied to scrofula the

name of a *disease*, and have considered it only as a peculiar habit of body giving a *predisposition* to morbid action. Without waiting to discuss a point which resolves itself into a mere dispute about words, I proceed to state, that independent of the unequivocal characters of scrofulous *disease*, there are marks by which, in the very healthiest conditions of the body, the scrofulous disposition may (not indeed with certainty, but with a reasonable share of probability) be distinguished. Of this kind are, a fair thin smooth skin, in which the blood-vessels are particularly apparent; light and soft hair; large blue eyes, and a blooming complexion; the upper lip, *columna nasi*, and lower part of the nostril more tumid than natural; fulness and turgescence of the veins; long and slender fingers; and lastly, a narrow chest, and prominent shoulders. The scrofulous habit is thus characterized by a general laxity of muscular fibre, and delicacy of organization throughout the body. The mental faculties are usually developed early. The intellect is acute and lively.

The scrofulous diathesis, however, can never be decisively proved by the concurrence even of all these appearances. There must be superadded to them certain *morbid* phænomena before its presence in the system can confidently be pronounced; and these will seldom fail to exhibit themselves, for scrofula is marked by a peculiar disposition to morbid action in the body. Among the earliest, the most frequent, and most characteristic symptoms of the disease, are swellings of the absorbent glands,

particularly those of the neck. This too is the mildest form under which scrofula ever appears. Such tumours sometimes continue for a long time, neither advancing nor receding, unattended by pain or any constitutional disturbance. Sometimes they subside spontaneously, but more frequently suppuration of an imperfect kind gradually takes place in them, followed by open ulceration. The ulcers heal slowly, leaving ragged and unsightly scars, and are succeeded by other tumours which run a similar course. In this manner the disease is often kept up for a series of years, until at length the constitution either throws it off, or it appears under some of its more severe and dangerous forms.

An opinion has been entertained, that in scrofula a *morbid matter* is generated which has a *specific* influence on the lymphatic system, but there are no sufficient grounds for this notion. What the circumstances are, which in a scrofulous habit render the lymphatic system so peculiarly liable to inflammation we know not, but many other structures are affected also*, and in all cases the inflammation which is excited has the same general character. It is of a chronic languid kind. The scrofulous abscess is distinguished by its jagged and uneven sides. The pus which it contains, instead of having a bland uniform cream-like appearance, is thin, or *ichorous*,

* The gradual expansion of the opinions of pathologists regarding the nature of scrofula, will be found ably detailed in an article in the *Edinburgh Medical and Surgical Journal*, vol. xviii. p. 121.

and mixed with curdy flakes. The ulcer by which it is succeeded has a smooth, obtuse, and overlapping margin. The surface of the sore is of a light red colour, and the granulations are flabby and indistinct. For a great length of time, in spite of every care, it remains indolent, neither increasing nor diminishing in size.

There is hardly an organ or tissue of the body which can be considered free from the ravages of scrofula. It appears occasionally in the head, in the form of small tumours attached to the membranes, or imbedded in the substance of the brain or cerebellum, and laying the foundation of hydrocephalus. In the lungs scrofula exhibits itself in the form of tubercles, scattered through their substance, modifying the character of inflammation in that organ, and producing genuine consumption. Scrofula, in like manner, attacks in their turn all the viscera of the abdomen, the liver, the peritonæum, the kidney, the ovaria, and the mesenteric glands.

Of the external parts of the body liable to scrofulous disease (independent of the lymphatic system) may be particularly specified, the tarsi, the thyroid gland, the mamma, the testicle, but above all the bones and other structures connected with joints. These varied forms of scrofulous disease constitute a very large proportion of the objects of a surgeon's attention. It would be desirable, certainly, to ascertain, and strictly according with the design of this work to point out, the unvarying, the *pathognomonic*

characters of scrofulous complaints generally, and thus to limit the application of a term which is now perhaps too extensively employed. The task, however, is a very difficult one, and in the present state of the science hardly to be effected. Any *detailed* statement of the symptoms of these diseases belongs exclusively to surgery. I pass on, therefore, to the consideration of the *causes* of scrofula, a branch of the inquiry involving many interesting but doubtful points.

All periods of life are liable to scrofulous disease, but the tendency to it is certainly greatest in childhood, and again when the growth of the body is completed. If a person, most obviously scrofulous, passes his thirtieth year, he may then in a great measure consider himself secure from its ravages. Age has a singular power in modifying the liability which particular structures have to this disease. In early life the lymphatic glands, the tarsi, and the joints, are those which chiefly suffer. After puberty the lungs are principally affected. In advanced life the disease, when it does occur, has a tendency to disorganize the liver, kidney, and prostate gland.

Much discussion has arisen regarding the propriety of calling scrofula an *hereditary* complaint; but the general observation of mankind has decided this question. It is not contended that all the children of scrofulous parents are *necessarily* scrofulous, that the scrofulous taint can never be eradicated from a family, or that the disease is not occasionally

generated in persons whose parents were free from any suspicion of it. The opinion must be received with limitations. Scrofula is hereditary as far as any disease can be so, as far as any kind of temperament or constitutional peculiarity can descend from parents to their offspring. Children of scrofulous parents undoubtedly often continue through their whole lives entirely free from the disease: but the spirit of the doctrine is this ;—of two families of children, the one born of scrofulous, the other of healthy parents, the probability is strongly in favour of the disease breaking out in the former, rather than in the latter.

That the scrofulous diathesis may be *acquired*, is a point which no one, I presume, would venture to dispute. The very notion of hereditary transmission presupposes some one in whom the morbid phænomena primarily appeared. The same causes which, operating in a minor degree, lead to scrofulous disease in those hereditarily predisposed, will, in a higher degree, *generate* it. It appears indeed to be satisfactorily ascertained, that no purity or strength of original constitution will exempt from the ravages of scrofula those who have been long and repeatedly exposed to its exciting causes. In considering the circumstances which lead to the development of a scrofulous diathesis, we are to direct our attention principally to climate, town air, diet, modes of life, and lastly, previous disease.

1. The influence of climate is immense, and may be estimated by the following facts. In the East and

West Indies scrofula is hardly known, but when the natives of either are brought into this or any European country, they suffer from it severely*. The prevalence of scrofula is directly proportioned to the coldness, or, more properly, to the *variableness* of the climate. Scrofulous affections are principally met with in all countries during the winter months. They rapidly improve, or disappear altogether, on the approach of summer, and this effect of warm weather upon scrofulous ulcers is not only important in practice, but even in diagnosis. 2. Among the causes of scrofula the close confined air of a town appears to merit especial mention. The complaint is infinitely more common among the inhabitants of a town than among those of a corresponding class of society breathing the pure air of the country. It is notorious that the population of our large manufacturing towns (Manchester for instance), pent up during the day in cotton-mills, are of all others most afflicted with it. 3. Certain modes of life contribute also in no small degree to the development of scrofula,—confined habitations, want of cleanliness, sedentary occupations, irregular habits, but, above all, deficient or unwholesome diet. They concur in reducing the tone of the system below that healthy standard which is the surest preservative, not only against the attacks of scrofula, but of every other disorder. The extensive influence of debilitating causes, lastly, is demonstrated by the prevalence of scrofulous affections sub-

* This was strikingly exemplified in 1816, when one of the West India regiments was stationed at Gibraltar.

sequent to small pox, measles, hooping cough, and other diseases which most unequivocally impair the energies of the constitution. Of late years attempts have been made to connect the scrofulous diathesis in a peculiar manner with *primary* derangement of the digestive functions, but no sufficient reasons have been adduced in support of this opinion. It appears to me to be founded on very imperfect views of the mutual influence of the different parts of the animal œconomy upon each other.

These pathological considerations lead directly to practice. It is obvious that the *prevention* of a disease, and in a great degree also the principles of treatment when it has broken out, must depend on a knowledge of its causes. The time is past when direct or *specific* remedies for the scrofulous diathesis could be proposed, with any prospect of obtaining the confidence of professional men. All that is now attempted is to avoid the obvious exciting causes, and to place the system in that state, in which it may best resist the operation of such as are more obscure, or altogether beyond our control.

Climate cannot, except in a few instances, be changed; but attention to clothing, more especially to the use of flannel, will go far towards obviating many of the injurious effects of that in which we live. The importance of a pure country air, still more of the air of the sea-side, has been long and very generally acknowledged. There have been

differences of opinion, however, as to the value of *sea-bathing* in scrofula, but it is hardly possible to entertain such now, after the ample experience of its power, which has been afforded by the establishment of the Margate Sea Bathing Infirmary. Some caution is of course necessary in its application. The constitution must have vigour to support the shock of immersion, and the system must be free from fever or latent visceral disease. In some cases the warm salt bath may be preferable to the open sea; but there are few, even of the most aggravated forms of the disease, which are not benefited by sea bathing under judicious management. There is even strong reason to believe that a perseverance in it for two or three years during the summer months, has materially contributed to assist the constitution in throwing off the disease altogether.

Regular exercise and early hours will of course be enjoined; but attention to diet is of all measures perhaps the most important with a view to the permanent security of the patient. The value of a wholesome nutritious diet in scrofula can hardly be overrated, but the *asthenic* nature of the disease has often led both parents and practitioners to a hurtful extreme. They have overloaded a delicate stomach with full meals of stimulating food, wine, and fermented liquors; and thus, in their attempts to strengthen the system, have brought on the very condition of the stomach and bowels, in which the seeds of scrofulous action are most effectually laid. It should be remembered that there is no morbid

state, which is not, in one sense, debilitating, and in which, by parity of reason, the same treatment is not requisite. The diet of a child liable to scrofula, then, should be nourishing, not stimulating, and given only in such quantity and at such regular intervals that the stomach may never be *oppressed*.

I would not wish to undervalue the influence of remedies, but it requires only a very superficial knowledge of the disease, to be convinced, that in comparison with those other means of relief which have been recommended (warm clothing, pure air, cold sea bathing, and nutritious diet), they are of little avail. Those which chiefly deserve confidence, are occasional gentle purgatives containing a small proportion of calomel, followed by the use of bitters and the carbonate of soda, when the functions of the stomach and bowels are impaired; the more powerful tonics, steel, bark, or the mineral acids, when the constitution is much debilitated; and certain mild alteratives, such as the decoction of sarsaparilla, and the liquor potassæ, in states of the system not very well defined. To these a long catalogue of drugs might be added which have acquired reputation in the hands of different practitioners; coltsfoot in Dr. Cullen's, the muriate of baryta in Dr. Crawford's, hemlock in Dr. Storck's, &c.; but they are now almost discarded from common use.

It remains only that I advert briefly to the treatment of that characteristic form of scrofula, to

which the term king's evil is specifically appropriated, and in which the lymphatic glands of the neck become enlarged, with or without supervening inflammation. Besides the general measures already recommended, and which of course are equally serviceable in this as in every other variety of scrofula, advantage has been derived, where the tumours are indolent, from stimulating or *discutient* remedies, such as lotions and poultices made of sea-water, mercurial plasters and friction. When the tumour has advanced so as to form an abscess, and the skin so far destroyed as to leave an open sore, the case is purely surgical; and to the writers in surgery I refer, who abound in directions for the treatment of scrofulous ulcers.

CHAP. II.

RICKETS.

*Literary History of this Disease——Symptoms of Rickets——
Its supposed Causes——Its Dependence on bad Nursing
——Pathology——Treatment.*

IT is a singular circumstance, that a disease arising, as we have reason to believe, from causes which must have operated in all ages and countries, should not have attracted attention until a very recent period. That it must have existed previously can hardly be doubted, and we are reduced therefore to the alternative of either imputing great negligence to the earlier observers in not having noticed it, or bad pathology in having confounded it with scrofula. The first account which we have of rickets was drawn up by Glisson, in conjunction with two other English physicians, in 1650, and it is both copious and accurate. Their inquiries tended indeed to prove that the disease first appeared in the western counties of England about the year 1620, whence it spread over the whole of Europe. A long controversy succeeded on the question of its modern origin. Zeviani and

De Haen attempted to trace it in the writings of Hippocrates, but failed.

Rickets is, comparatively speaking, a rare disease. We meet with but few deformed persons in the streets, and there can, I believe, be little doubt that it is now much less frequent than when it first attracted the notice of English physicians. A very short description of it therefore will suffice on the present occasion.

Rickets never appears in children at birth, and very rarely indeed before the ninth month, or after the second year. The advances of the disease are gradual, and at first hardly perceptible. One of the earliest symptoms is an unnatural softness and flaccidity of the flesh. The body emaciates, although the appetite be good, and food perhaps be taken in sufficient quantity. The cheeks are wan and sallow; the abdomen protuberant; the stools unhealthy in their aspect; the urine turbid. Dentition goes on slowly; the teeth which appear are unsound, and speedily become loose and carious. The process of ossification is peculiarly imperfect, and this leads to many of the most characteristic features of the complaint. The fontanelles and sutures are more open than is usual with healthy children of the same age. The head appears large with respect to the body, and the forehead prominent. The ribs flatten at their sides, and the sternum projects into a ridge. The epiphyses of the long bones become spongy, and the joints therefore appear swelled. This is particularly

manifest in the wrists, ancles, and knees. If the child had begun to walk, he daily becomes more feeble on his legs; he waddles, and speedily returns to his nurse's arms. As the disease advances the bones are rendered soft, and being unable to resist the weight of the body, or of the muscles inserted into them, are strangely and frightfully distorted. The spine particularly suffers. The dorsal vertebræ are forced out of their places by the weight of the head, and the child becomes hump-backed.

It is frequently remarked that the evolution of the mental faculties does not correspond with this *stagnation* of the assimilating functions. In many cases, the child learns to talk with surprising rapidity, and enjoys an acuteness of intellect much beyond his age. The same thing is equally observable in *scrofulous* cases. The phænomenon is not, however, of invariable occurrence. In that highest grade of rickets, which occurs in some of the valleys of the Alps and Pyrenees, and to which the term CRETINISM has been applied, the mind becomes completely imbecile and fatuous.

It is seldom that rickets proves fatal. Usually after the lapse of two or three years the constitution acquires sufficient strength to put a check to its further advances, and at length the general health is thoroughly re-established. If the distortion of the limbs had not proceeded very far, it will often be remedied in after-life in proportion as the bones lengthen, and it is surprising to see how much nature

will sometimes effect in such cases. But where the distortion has been very great, particularly, as Glisson remarks, if the child passes his fifth year without any decided symptoms of improvement, he will continue a miserable object through life. Dissections of those who have died of rickets, do not unfold any peculiar affection of the viscera.

Some very extraordinary opinions have been entertained regarding the origin and pathology of rickets. It was at one time supposed to be allied to syphilis, and more lately a pathological connexion between scrofula and rickets has been insisted on, hardly supported, however, on better authority. From the circumstance of its frequently appearing among the children of the same family, it has been considered as *hereditary*. All the older writers agreed in the belief that the constitution of the parents had much to do with the appearance of rickets in their offspring, and the opinion received the high sanction of Dr. Cullen's authority.

There appears little occasion, however, for accusing the *constitution* of parents. Their inattention and neglect are quite sufficient to account for the phænomena. Pathologists are now, I believe, well satisfied that rickets is the disease of bad nursing. The child is kept on a bed instead of being tossed about in the arms. It is confined to a close ill-ventilated small room instead of a large and airy one. It is scarcely ever carried into the open air. The child's body is neither washed nor rubbed as

it should be. When it has arrived at the eighth or ninth month, it is taken from the breast and crammed with all manner of unwholesome food. That this system, persevered in for several months, should end in great constitutional disturbance, can hardly surprise us; and that these are the real efficient causes of rickets will be obvious from this,—that the disease appears only among the lower orders of people who cannot afford the time to nurse their children properly, or among those who are put out to nurse, where the same interest cannot be taken in the welfare of the child as if it were brought up at home.

Various conjectures have been offered as to the proximate cause of rickets. A depraved state of the blood and humours, with a laxity of structure in the solid parts, was the suggestion of the early writers. Dr. Cullen attributed every thing to debility of the digestive organs. A chemical theory in later times has made the disease depend on a deficient formation of the phosphate of lime. The theory of constitutional diseases is necessarily obscure, and nothing appears to be gained by the display of pathological learning which has been made in the case of rickets. Every function of the system languishes. Digestion, assimilation, nutrition, absorption, are equally impaired; and as the whole system is in fault, from causes which operate widely, so must the cure be attempted by measures of general application.

Strict attention to regimen is above all things to be insisted on. Daily washing, cool and fresh air, exercise suited to the age of the patient, and either breast-milk or a nutritious unirritating diet, are to be rigorously enforced. If the system be not exceedingly reduced, cold bathing, during the summer months, and tepid bathing in the winter, will conduce essentially to recovery. Frictions are of some use. Bandages I believe to be altogether ineffectual.

Tonic medicines, in moderate quantities and not too long continued, may be exhibited with some advantage. Steel wine is a favourite and useful domestic remedy. A powder containing the carbonate of iron and columbo (R No. 83), or the tonic electuary (R No. 84), may be substituted. Cascarella and bark, with acid, have been serviceable in many cases. An occasional dose of rhubarb or of scammony with calomel prevents the accumulation of sordes in the stomach and bowels, promotes digestion, and thus tends materially to invigorate the general system.

CHAP. III.

SCURVY.

*Symptoms of Scurvy—Causes—Pathological Speculations
on the Nature of Scurvy—Treatment—Influence of
Antiscorbutics.*

A VARIETY of cutaneous eruptions, supposed to be dependent on a morbid condition of the blood, are familiarly called *scorbutic*, but in strict nosological language, the term *scurvy* is appropriated to a disease seldom met with except among seamen. It has been designated as one of the great *sea epidemics*, and has proved, even up to a late period, the destruction of many a fleet *. Of a disease which I have never seen and can hardly expect to see, I would willingly omit the consideration; but to complete the plan of the work I shall venture on

* To form an idea of the ravages which this disease is capable of producing, the student may consult the interesting picture of the sufferings of Lord Anson's crew, in the "Account of his Voyage round the World in 1743," one of the most elegant narratives in the English language.

a very brief sketch of its symptoms, causes, and treatment, abstracted from the essay of most repute on this subject *.

The scurvy comes on gradually with lassitude, disinclination to motion, and difficulty of breathing on slight exertion. The face assumes a pale or yellowish hue. The gums swell and bleed upon the slightest friction. They appear soft, spongy, and sometimes livid. The breath is offensive. The skin is dry and rough, or sometimes smooth and shining. It will generally be found covered with livid spots, which coalesce into large blotches (particularly about the legs and thighs), and obviously arise from the effusion of blood. The legs swell, and ultimately the whole body becomes œdematous. The patient complains of a pain in all his bones, with tightness and oppression about the chest.

Any sore which may happen to be on the body acquires a peculiar character, which is correctly denominated *scorbutic*. It discharges a foetid or bloody sanies. The base of the sore is covered with sloughs. Its edges are livid and lined with a soft bloody fungus that increases rapidly.

In what has been called the second or aggravated stage of the complaint, the patient loses all use of his limbs. The tendons in the hams are

* Treatise on the Scurvy. By Dr. James Lind. 1772.

contracted, with swelling and pain of the knee and other joints. General emaciation ensues, with a tendency to syncope on the slightest exertion. Hæmorrhages break forth from the nose, ears, and bladder. Diarrhœa supervenes, and the stools are offensive and bloody. The patient either dies dropsical, or exhausted by some sudden effort.

Very ample experience has proved that scurvy arises from deficiency of proper nutriment. It occurs to sailors when living on salt provisions, more especially such as have been long kept, and which, therefore, contain very little nourishing matter. All observations tend further to prove, that the disposition to the disease is greatly augmented by neglect of cleanliness, imperfect ventilation, want of proper exercise, and a cold damp atmosphere.

The whole train of symptoms manifestly points out extreme feebleness of the powers of life, as the leading principle in the pathology of scurvy. Attempts have been made, however, to define more accurately the *seat* of the disease. Dr. Lind* is of opinion that scurvy consists mainly in a weakened and relaxed state of the *solids*. Dr. Cullen, on the other hand, imagines that a putrescent state of the *blood* is the true proximate cause of the disease, and he believes this to arise altogether from the introduction of an un-

* Treatise on Scurvy, page 230.

usual quantity of salt into the body. How far the latter opinion is correct it is scarcely necessary to inquire, and hardly possible to determine, for we have no authentic accounts of the disease appearing, where salt provisions could fairly be considered as the *sole* agents in its production. Nor is it consistent with sound pathology to weigh the respective merits of those theories which ascribe scurvy exclusively to laxity of the solids or putrescency of the fluids. It is abundantly obvious that both are affected, and that every function and structure of the body participates in the general weakness.

Whatever difficulties may be experienced in determining the theory of scurvy, few points in medicine are less susceptible of dispute than its treatment. In fact, scarcely any thing else is requisite than a return to wholesome diet, particularly to the use of fresh vegetables. For this hardly any thing will compensate.

The great object of navy surgeons is not to cure so much as to *prevent* the scurvy, and this is now effected by an admirable system of regulations, in which *diet* and *regimen* are equally looked to. To unfold these is out of the scope of a strictly medical inquiry. It is sufficient to say that they comprise attention to personal cleanliness, clothing, ventilation, exercise, with the means of avoiding cold and damp. To these may further be added the daily use of what are usually called *antiscorbutics*. Substances of this class have long enjoyed a repu-

tation in the world as *purifiers* or *sweeteners* of the blood, and such a power cannot well be denied to them. Those which the experience of the navy has shown to be most deserving of confidence, are lime juice, preserved fruits, sugar, infusion of malt, spruce beer, and vinegar.

Where the disease has made its appearance, and the true antiscorbutics (fresh vegetable and animal food) cannot be procured, bark, the mineral acids, and medicines of the alterative kind may be tried, but the prospect of success from them is small. Scorbutic ulcers are improved by local applications of an astringent and antiseptic nature, but it is obvious that their cure must equally depend on *constitutional* means.

CHAP. IV.

HÆMORRHŒA PETECHIALIS.

States of the System in which cutaneous Hæmorrhage takes place——Malignant Fever——Plethora, with Congestions or irregular Distributions of Blood——Exhaustion——Phænomena of chronic cutaneous Hæmorrhage——Prognosis——Treatment.

IN several parts of this work allusion has been made to the occurrence of hæmorrhage from the cutaneous capillaries; and as the pathological doctrines which it involves possess considerable interest, it will be right to bring them before the student in a connected manner. Independent of their more obvious bearings, they will serve to impress upon his mind principles, which, of all others, it appears to me of importance to inculcate; the *constitutional* disturbance present in a greater or less degree, in almost every variety of disease, and the dependence of the same phænomenon upon very opposite states of the general system. I shall first point out the several conditions of the body, in

which cutaneous hæmorrhage has been observed to occur, and then detail the phænomena and treatment of that affection to which the terms *hæmorrhœa petechialis*, and *purpura hæmorrhagica*, have been commonly applied.

1. Purple spots on the skin, constituting petechiæ and vibices, are in the first place the result of febrile action, generally of a typhoid or malignant character. They occur sometimes at the very onset, sometimes towards the close of the fever. In the former case they often acquire an undue importance in the eyes of the practitioner, who is apt to overlook the febrile state by which they are accompanied. They are in strict nosological language cases of *petechial fever*, but the terms *purpura contagiosa*, and *purpura maligna*, have been frequently applied to them. Fevers of this class will commonly be found associated with great disturbance of function in the brain and nervous system, upon which, in all probability, the cutaneous hæmorrhage immediately depends. It is hardly necessary to add that the occurrence of petechiæ in an early stage of fever is a symptom of urgent danger. It denotes either uncommon malignity in the contagion, or a peculiarly depressed and languid state of the body in which the contagion operates. On opening the bodies of those who die of the disease, it will generally be found that the hæmorrhagic tendency displays itself equally in some of the internal organs. I have noticed it in the heart, and mesentery.

2. An eruption of purple spots, in every respect resembling those which occur in fever, is sometimes met with along with marks of plethora; still more decisively in connexion with symptoms denoting *congestion* of blood in some of the great organs of the body, or irregular distributions of blood throughout the body generally. It has been observed, in certain instances, along with and probably depending upon thoracic disease of an obscure kind, marked by dyspnœa and an oppressed pulse, and commonly described as a state of congestion about the heart and lungs. Dr. Bateman* details the particulars of a case that fell under his own observation, in which the disease appeared to arise from an enlargement of the thyroid gland. I observed it, in one instance, succeeding measles.

Again, chronic cutaneous hæmorrhage has frequently been traced to *abdominal* disease. It has long been known that morbid states of the spleen are attended with different forms of hæmorrhage, and among others with that from the cutaneous capillaries. Cases not unfrequently occur in which purpura is connected with hepatic obstruction (the result of habitual spirit-drinking), evidenced by the jaundiced hue of the skin and eyes, pain of the side, and dry cough. Some recent observations have led to the belief that purpura occasionally depends on a morbid condition of the villous coat of the intestinal canal. It would be more correct, perhaps, in this

* Practical Synopsis of cutaneous Diseases, page 111.

and other cases, to consider both the abdominal and cutaneous disease as *effects* of an ulterior but obscure cause influencing the *whole habit of body*.

3. A disposition to petechiæ appears, in the third place, as a consequence of deficient nourishment, and other most unequivocally debilitating causes. It has been very frequently met with among children who are ill fed and nursed, and among persons of all ages who live in close situations, who enjoy but little exercise in the open air, and are exposed to much fatigue, long watching, and great mental anxiety. It is not uncommon in the last stages of infantile marasmus, and it has been often observed in adults who are left in a state of great exhaustion by any severe or protracted illness.

4. Cutaneous hæmorrhage, lastly, is in some instances altogether *constitutional*;—that is to say, it depends upon a natural inherent weakness of the circulating system. In such habits of body, attacks of petechiæ are habitual, whereas in all the cases hitherto alluded to they are *accidental*. They then occur on very slight occasions, and not unfrequently without any apparent cause. Errors in diet, unusual fatigue, or exposure to cold, are sufficient to induce them. In aggravated cases the gentlest pressure on the skin will occasion a purple blotch like that which is left after a severe bruise. In constitutions so disposed, the drawing of a tooth is sometimes followed by alarming hæmorrhage. Instances are even on record of death from such a cause.

The first of these states of disease does not require further investigation. The other three constitute the different species of that complaint which has been called hæmorrhœa petechialis*. There is the utmost variety both in the manner in which the hæmorrhage commences and ceases, and in its accompanying symptoms. It sometimes occurs suddenly, but more commonly is preceded for a week or two by great lassitude, faintness, and pain of the limbs. In its progress it is attended with extreme debility and depression of spirits, and a pulse generally feeble. After the disease has continued for some time the patient becomes sallow, and much emaciated, and a degree of œdema appears in the lower extremities, which gradually extends to other parts. The effusion of blood commonly commences in the legs. The spots are at first of a bright red colour, but soon become purple, and when about to disappear, change to a brown or yellowish hue. The cuticle covering them is smooth and not sensibly elevated, except in a few rare cases, which Dr. Willan distinguished by the name of *purpura urticans*. They vary in size from the minutest point to that of streaks and large blotches. They are neither itchy nor in any way painful.

Discharges of blood take place at the same time from some of the great mucous surfaces,—from the gums, nostrils, lungs, stomach and bowels, or ure-

* This term was first employed by Dr. Adair in 1789. In former times the disease was known by the name of *petechiæ sine febre*.

thra. These hæmorrhages are often profuse, and not easily restrained. The disease is extremely uncertain in its duration. Where the hæmorrhagic diathesis is constitutional, it may continue to harass the patient, more or less, through life. Where it arises from accidental causes, its severity and termination are in some degree under our own control. When the disease ends fatally, it is often by a copious and sudden discharge of blood from some important organ,—the lungs, the stomach, or the uterus.

In the treatment of hæmorrhœa petechialis, no rule of practice can be laid down which shall be universally applicable. We have improved certainly upon the notions of the older physicians in admitting that cutaneous hæmorrhage does not necessarily preclude the application of the lancet; but further than this it would be unsafe to go. The idea of treating all, or even the majority of cases of this disease by depleting measures, is hardly less blameable than the blind adherence to astringents and stimulants which characterized the practice of an earlier age. A constitutional tendency to ecchymosis is best combated by those tonic means which are of slow operation, but of undoubted efficacy,—I mean pure country air, regular exercise, nourishing food, early hours, and such amusements as withdraw the mind from the cares and fatigues of business or study. The use of the mineral acids, bark, and a moderate allowance of wine, will coincide with the general indication. The same plan of treatment is equally applicable to such *accidental* cases of purpura

as arise in debilitated habits, and are accompanied by a weak pulse, a sallow dirty complexion, and a tendency to syncope or œdema. In many of these, stimulant remedies require to be exhibited in full doses.

No theoretical views of laxity or debility, however, are to prevent us having recourse to a different system of management, when the disease occurs under opposite circumstances. If petechiæ appear in persons already enjoying pure air, and suffering no privation of diet, if they are accompanied by a sharp pulse, a white and loaded tongue, occasional chills; and if, at the same time, there are fixed internal pains, cough, dyspnœa, or other symptoms indicating the existence of some local visceral congestion, the administration of tonic medicines will be ineffectual, if not actually injurious. Depleting measures proportioned to the urgency of the symptoms must be promptly resorted to. Blood may be taken from the arm, in the first instance, with safety and advantage. Free purging is well suited to these cases. Calomel and jalap in active doses may be liberally given.

The convalescence will generally prove tedious, for the disease is one which denotes, under all circumstances, very deep and extensive disturbance throughout the whole animal œconomy*.

* The history which I have given of this disease is, with very few alterations, that of Dr. Bateman, who devoted much of his time and attention to this curious subject.

CHAP. V.

DIABETES.

Division into the insipid and saccharine Varieties——Symptoms of the true Diabetes Mellitus——Prognosis——Appearances on Dissection——Causes——Pathological Conjectures concerning the Nature and Seat of Diabetes——Proposed Plans of Treatment——Influence of Drugs on the Secretion of diabetic Urine.

THIS singular disease has excited a more than common interest among the pathologists of modern times. The original description of it is to be met with in the writings of Aretæus ; but though it has been known from so distant a period, few attempts were made until lately to investigate its nature. That they have not been followed by all the success which might be desired, may be attributed in part to the rarity of the complaint ; but much curious information has been collected concerning it, and many ingenious conjectures have been thrown out regarding its remote and proximate causes, which may prove useful to the student. These it is my present object to lay before him in a condensed form. The leading symptoms being an increase in the quantity, and an alteration in the quality of the urine, diabetes

has usually been considered as a disease of the kidney, but this is merely a conjecture, into the merits of which we may hereafter inquire. The phænomena which it presents ought, in the first place, to be studied without reference to any peculiar pathological opinion.

An increased flow of urine accompanies several disorders, especially such as are of a convulsive, or *hysterical* character. These, however, are not included under the head of *diabetes*. Nosologists have confined this term to cases in which the increased flow of urine is *permanent*, and with which are associated constitutional symptoms usually designated by the term *cachexia*. Two *species* of diabetes have been described, the *insipidus*, and *mellitus*, and it has long been a question, whether these differ in any *essential* circumstances from each other. Dr. Prout is inclined to believe they do, and recommends that the term diabetes should in future be restricted to those affections in which the urine is *saccharine*. I shall principally direct my attention to the phænomena of the genuine diabetes mellitus, noticing incidentally the peculiarities of the other variety of the complaint.

Diabetes makes its approaches very insidiously. The first symptoms usually complained of are lassitude, weakness, a disposition to sweating on slight exertions, and headache. Sometimes a diseased state of the urine advances to a considerable extent, and subsists for some time, without being accom-

panied by any strongly marked constitutional disturbance, and occasionally even without attracting the notice of the patient. The most striking symptom of the disease is an increase in the *quantity* of the urine. This varies very much in different cases, and is for the most part a good index of the violence of the disease. The largest quantity which I have seen recorded as having been passed in twenty-four hours is thirty-two pints; and it is no uncommon thing to find from twenty to thirty pints discharged daily for weeks, or even months together. The average quantity may perhaps be stated at twelve or fifteen pints, and it is a remarkable fact, that in many instances it exceeds the whole amount of ingesta, solid and fluid. The secretion of so much urine is almost necessarily attended with a frequent desire to pass it. The patient is generally compelled to rise three or four times in the night for this purpose.

The urine of diabetes is of a pale straw colour. Its smell is commonly faint and peculiar, sometimes resembling sweet whey or milk. Its taste is with few exceptions decidedly saccharine, in a greater or less degree*. Even if this should not be perceptible in the first instance, it may often be detected when the urine is concentrated by evaporation. In many cases the saccharine quality of the urine is occasionally suspended; and this happens both spontaneously, and

* This remarkable quality of diabetic urine was first noticed in 1684, by Dr. Willis.

from the influence of medicine. Of the fact that sugar is secreted by the kidney in this disease no doubt can be entertained. It is confirmed by the repeated experiments of chemists in all countries. The quantity of sugar formed is in most instances directly proportioned to the degree of *diuresis*, and may always be estimated by the specific gravity of the urine. We are indebted to Dr. Henry of Manchester for the following table, showing the quantity of solid extract in a pint of urine of different specific gravities.

Specific Gravity of the Urine at 60°, compared to Water as 1000.	Quantity of solid Extract in a Wine Pint (in Grains).	Quantity of solid Extract in a Wine Pint (in Ounces, Drachms, Scruples, and Grains).			
		oz.	dr.	scr.	grs.
1020	382·4	0	6	1	2
1025	478·4	0	7	2	18
1030	574·4	1	1	1	14
1035	670·4	1	3	0	10
1040	766·4	1	4	2	6
1045	862·4	1	6	1	2
1050	958·4	1	7	2	18
Healthy urine has a specific gravity of 1012, and contains seven parts in 100 of solid matter.					

From this table it appears, that if a patient passes twelve pints of urine in the day, of the specific gravity 1035, he voids in that time above sixteen ounces and a half of solid matter. The quantity, however, is in many cases much greater than this.

Other important symptoms occur in diabetes besides those now specified. The appetite is usually much greater than in health, though digestion is seldom if ever perfect. There is uneasiness therefore in the stomach after meals, with flatulence, acid eructations, and irregular bowels. Thirst is a never-failing source of complaint, and often attracts the notice of the patient before he is sensible of the true nature of his case. The skin is dry, and has a peculiarly rough and parched feel from the total want of perspiration. The gums are often swelled, tender, and red, sometimes ulcerated. The breath has a subacid odour. The tongue is white and foul in the centre, with bright red edges. The mouth is dry and parched, and the taste depraved. The patient will generally be found to complain of some pain or sense of weakness in the loins. Phymosis and excoriations on the penis are frequently noticed. Besides these, there occur in almost all cases symptoms indicating general weakness or exhaustion—such as swelled legs, emaciation, coldness of the feet, dyspnoea on the slightest exertion, a sense of weight at the epigastrium, with tendency to syncope, general languor, lassitude, and depression of spirits. Early in the disease the pulse is seldom affected, but in its progress hectic fever supervenes, and the pulse becomes frequent, feeble, and irritable.

The duration of diabetes is very variable. An instance is recorded where it ran its course, and proved fatal, in five weeks. On the other hand it has been known to last for several years, and ultimately

to wear out the constitution. The prognosis indeed, under all circumstances, is very unfavourable. A few well-authenticated instances of recovery might be quoted, but they are too rare to redeem the disease from the character of danger which it has so long borne. It has proved fatal in three ways ; first and most frequently by the supervention of either acute or chronic inflammation in the chest ; secondly, by dropsy, and exhaustion ; while in a few cases the patient has been cut off suddenly. The distinction between the insipid and saccharine forms of diabetes to which I formerly adverted, is chiefly of importance with a view to prognosis. The danger is certainly much greater where the saccharine quality of the urine is thoroughly established.

Dissections of those who die of diabetes have been diligently practised, but hitherto they have thrown no light whatever on the nature of the complaint. The lungs are often found diseased. The kidneys in a few cases have exhibited their usual healthy appearances, but commonly they are more or less affected. Their texture is more flaccid than natural, or they are turgid with blood, though seldom enlarged in size. The cellular membrane surrounding the kidneys, that of the abdominal parietes, and of other parts of the body, is frequently found loaded with a gelatinous substance. I have seen the same, in a different form of chronic ailment, lining the inner surface of the bladder ; and it appears to be a diseased secretion, occurring generally in worn-out constitutions.

In investigating the pathology of diabetes several curious questions occur. It may be right to remark previously, that it is a disease observed in all ranks of society. No employment or profession can be stated as particularly liable to, or exempt from it. It is met with in both sexes, and at various ages, but it chiefly prevails among men, and in the middle or advanced periods of life. It would appear to be more frequent in cold than hot climates. Dyspeptic complaints long continued may perhaps favour the disposition to diabetes, but little or nothing is known regarding its remote or occasional causes. Intemperance, severe evacuations, hard labour, and exposure to cold, have been accused of bringing it on, but I believe without any adequate reason.

One of the first objects of pathological inquiry is to determine whether the saccharine condition of the urine is a primary feature in the complaint, and if it ever exists independent of increase in its *quantity*. Dr. Prout* is inclined to the opinion that it does, and that the increased flow of urine is referable to an *irritable* state of the system, which forms part of the disease, and resembles that present in hysteria and other nervous affections. Some of the constitutional symptoms attendant on diabetes are perhaps owing to the vitiated quality of the urine, but the most distressing are doubtless to be referred to that enormous *drainage* from the system, both of fluid

* Inquiry concerning the deranged Operation of the urinary Organs, page 65.

and solid matter, which takes place when the disease is severe. Differences of opinion are entertained regarding the origin of the sugar which exists in diabetic urine. Some imagine it to be formed in the stomach, and others in the kidney. Dr. Wollaston has rendered the latter the more probable opinion, by showing (Phil. Trans. 1811), that sugar does not exist in the blood of diabetic patients whose urine is at the time sweet. Many persons indeed have been inclined to consider the stomach as the *primary* seat of diabetes, and they support the opinion by reference to the thirst and inordinate appetite which attend it. Such symptoms, however, are more probably the result of excessive discharge.

A suggestion has been thrown out that the functions of the lungs are primarily implicated, and that diabetes consists in imperfect *animalization* of the blood, whereby sugar is formed instead of the true *animal* principles. The abettors of this opinion rely for its support partly on the fact that diabetes is frequently succeeded by unequivocal affections of the lungs, and partly on the appearance of the blood drawn, which in some cases does not coagulate, and in many can be preserved a long time without putrefaction. Dr. Cullen looked upon diabetes as a disease of the kidney, and some later pathologists have revived the notion. Morbid anatomy does not favour it, and I am disposed to think that in this theory stress is laid on a single symptom, to the neglect of others which equally tend to illustrate the real nature of the disease. No view of dia-

betes which has ever been proposed appears to be so reasonable as that which considers it as depending on general constitutional disturbance, and allied pathologically to dropsy. This indeed is not advancing far in the way of explanation, but it may still be preferable to simpler though less accurate hypotheses.

Where pathology is obscure the principles of treatment are necessarily deficient. To this we may ascribe the very opposite plans which have been devised for the cure of diabetes. The practice in this disorder, in fact, is almost purely empirical; and considering its great fatality, little else is requisite than a mere enumeration of the several kinds of treatment which have been proposed, and a brief notice of the influence which medicine exerts upon it. Astringent remedies were early resorted to, more particularly lime water, alum whey, kino, and catechu. On the supposition of diabetes being mainly a disease of debility, bark, chalybeates, and the mineral acids have been extensively used. In 1796 Dr. Rollo suggested the employment of animal diet, and experience has shown that it possesses an undoubted power of diminishing the *quantity* of urine. It will be found, however, in practice, that this plan of treatment can never be rigidly enforced. Blood-letting has been tried by some practitioners, and has proved serviceable in one or two cases, but it cannot be recommended for general adoption. Opium is the latest and now most esteemed remedy; but upon this, and upon all other remedies for the cure of diabetes, one

remark may suffice. Many drugs exert a *certain* power over the disease, which after a time fails. A blister to the loins will occasionally check in a remarkable manner the inordinate secretion of urine. Uva ursi, alum, and opium will do the same in other cases; but the relief they afford is temporary, and when the influence of the drug goes off, we are still as far as ever from the cure of the complaint. Pathological considerations lead to a doubt whether a remedy for diabetes, in its confirmed stage, can ever reasonably be expected.

CHAP. VI.

PATHOLOGY OF DROPSY.

*Intricacies of this Inquiry—Common Divisions of Dropsy
—Pathological Divisions—Local Dropsies—Acute
or inflammatory Dropsy—Dropsy of Weakness—
Evidences of the hydropic Diathesis—Appearances on
Dissection—Thoracic and abdominal Dropsy—Pro-
gnosis—Principles of Treatment—Influence of Blood-
letting—Purgatives—Diuretics—Tonics—Of the
surgical Means of Relief in Dropsy.*

FEW topics in medicine have received more attention from systematic writers than dropsical effusion. The frequency of the complaint, the very striking influence exerted upon it by medicine, and the marked character of the symptoms, have contributed to obtain for it, in all ages, this share of attention. The subject being one of great extent and difficulty, it is not surprising that the notions concerning it, entertained by the older writers, should have been imperfect. Even with all the assistance which the labours of modern pathologists have afforded, it still continues obscure and incom-

plete. Their improvements, however, are undoubted; and that the student should be able to appreciate their value, and at the same time form for himself correct notions of the nature of dropsy, he must, in the first instance, take a general survey of its *pathology*. Without this, his views of the disease must necessarily be limited and confused, while, by its help, the details of symptoms, causes, and treatment in each of the principal varieties of dropsy are easily comprehended. The *nosological* divisions of dropsies are very necessary in practice, and will hereafter be adverted to, but there are certain *pathological* distinctions among them, which are at least equally important. With these I shall commence, and to explain them shall, in the first place, direct the attention of the reader to the general character of the *symptoms* in dropsy, and, secondly, to that of the *appearances after death*.

1. The first distinction to be made among dropsies is into such as are connected with general constitutional disturbance, and such as are strictly *local* (employing, of course, that term in the qualified sense in which it can alone be properly received in medical disquisitions). Of the latter there are three principal forms,—chronic hydrocephalus, ovarial dropsy, and hydrocele. The two former have been already treated of. The latter is exclusively surgical. To this class also belong the cases of accidental anasarca, or *œdema*; but as these are very rare, and unimportant in practice, they may equally be excluded from our present consideration.

2. When dropsy exists along with constitutional derangement, it is reasonable to suppose that all the functions of the body participate, and doubtless this is a correct view of the case; but a notion has always prevailed, that the absorbent and sanguiferous systems are those which principally suffer. In former times *diminished absorption* was viewed by pathologists as the leading feature of the complaint, and by practitioners, the great principle of treatment was to stimulate the absorbents. More recently the circulating system has chiefly been looked to, and *increased exhalation* has been held up as the proximate cause of dropsy. We are too imperfectly acquainted with the physiology of the absorbent system, to determine what share it has in the production of dropsy; but the dependence of this disease on disturbance of the *sanguiferous* system is obvious, and of the first importance in practice. Dropsy is observed in two very opposite conditions of the vascular apparatus; of which the one is increased action either of the heart or of the arterial capillaries, or both; and the other, feebleness of arterial action, with sluggishness in the venous circulation.

3. Dropsy attended with increased vascular action is very common, and is either general or local according as the heart or the arterial branches are affected. The morbid action of vessels which gives rise to it, may be either actual *inflammation*, or high *irritation*, or *congestion*. Hydrocele and hydrocephalus may be taken as instances of local

dropsies of this kind. Ascites sometimes accompanies chronic inflammation of the peritonæum, and hydrothorax that of the pleura. Various examples might be offered of *general* dropsy, arising from, or intimately connected with, this state of the circulation. The most common are anasarca from exposure to cold, from the excessive use of spirituous liquors, from oppressed uterine functions (amenorrhœa), and from scarlet fever. In all these cases the disturbance of the heart's action is functional, and admits of a permanent cure. The principle, however, is perhaps most incontestably displayed in the disposition to dropsy which comes on in the course of structural diseases of the heart, when that organ labours exceedingly in its functions.

To this species of dropsy pathologists have given the name of acute, inflammatory, or *plethoric**. We might call it, with some propriety, *arterial*, as it is not necessarily accompanied with plethora or with feverish symptoms, and very seldom runs a rapid course. In this kind of dropsy the pulse is for the most part full and active, but sometimes hard, wiry, and incompressible. There is commonly cough and headache aggravated by a full inspiration. Dr. Blackall† has attached much importance to the

* This term was introduced about forty years ago by Dr. Grapengiesser, who appears to have the merit too of having first described such a form of dropsy.

† See "Observations on the Nature and Cure of Dropsies." By Dr. Blackall of Exeter. London, 1813.

coagulability of the urine in these cases on exposure to heat, a phænomenon very frequently but not universally observed. The exciting cause, where it can be ascertained, and the previous history of symptoms, assist materially in establishing the diagnosis. It occurs, for the most part, at an early period of life, and may often be traced to cold. Its attack is commonly sudden.

4. Dropsy is occasionally met with in a very different state of the circulating system;—a state of relaxation or atony of the exhalant vessels. This form of dropsical effusion corresponds with that colliquative sweating, which is the frequent consequence of full or repeated blood-letting. It is very often to be observed, therefore, in the latter stages of chlorosis, diabetes, consumption, and hectic fevers of all kinds. Atonic dropsy occasionally follows flooding, great and sudden abstractions of blood by the lancet, and protracted fevers. It is sometimes brought on in the lower ranks of life by the want of proper nourishment, and in all persons it may be induced by a long-continued state of disordered stomach and imperfect digestion. Dropsy from relaxation was a favourite doctrine with the early schools of medicine. They admitted, indeed, of no other species, and were at any rate unaware that the doctrine of atony and debility applies only to a small proportion of the cases of genuine idiopathic dropsy which are met with in common practice. Dropsies of this kind are attended with a weak and languid pulse, night-sweats, cold

extremities, and in many cases, a strong disposition to erysipelas, petechiæ, and gangrene. They chiefly occur in elderly persons whose constitutions are worn out. They commence imperceptibly, and are not traceable to any obvious case.

5. There is still, however, something about dropsy which is not thoroughly understood. A high degree of arterial action may exist, or the powers of life may be excessively reduced, without dropsy supervening. As in certain circumstances there is a peculiar tendency to hæmorrhage, so in others there is a tendency to dropsy. In what the *hydropic diathesis* consists, it is impossible to define with any accuracy. Possibly it may depend on some condition of the nerves; or on some want of *consent* between the functions of the capillaries, and those of the great arterial and venous trunks. To pursue these speculations, however, would be useless. It will be more advisable to direct the attention of the student to the *symptoms* of this hydropic disposition, which are few in number, but very distinct. They are,—diminished secretion of urine, thirst, œdema of the feet and ancles, and a peculiar expression of countenance, to which the term *leucophlegmatic* has been applied.

Having now pointed out the divisions of dropsy founded on the consideration of symptoms, I proceed to such as may be referred to the diversity of appearances observed on dissection.

Two sets of morbid appearances present themselves in those who die dropsical, the one thoracic

the other abdominal ; and this furnishes a most useful distinction in practice. In the thorax we meet with enlargements of the heart, diseased valves, adhesions of the heart to the pericardium, ossification of arteries, inflammation of the internal coat of the great arterial trunks, aneurism of the aorta,—tubercles and vomicæ in the lungs,—malformations of the chest generally. When dropsy occurs connected with this state of local disease, it commonly assumes the form of hydrothorax, hydropericardium, anasarca, or their combinations.

In many cases the thoracic viscera are found without the smallest trace of disease ; instead of which we meet with marks of inflammation (acute or chronic) of the peritonæum,—adhesion, thickening, or tuberculated accretion of that membrane ;—or we find enlargement and disorganization of the solid viscera ; tuberculated liver, swelled spleen, diseased mesenteric glands ;—the stomach scirrhus, tumours attached to the omentum, thickened and ulcerated intestines. When dropsy occurs complicated with any of these varieties of abdominal disease, it appears in the form of ascites, or of anasarca and ascites combined. Abdominal dropsy is much more common than thoracic, in the proportion of about six to one.

Sometimes we have occasion to notice thoracic and abdominal appearances present in the same subject ; and lastly, instances are not wanting of dropsy connected with mere *functional* disturbance of some

organ proving fatal, and leaving behind it no trace of morbid structure.

The prognosis in dropsy is always unfavourable, and for many reasons. It is, as we have seen, connected with states of thoracic and abdominal disorganization, over which we have no control. It indicates great *severity* of disease, and shows that the *whole system* is deeply involved in it. It is often the strongest mark of a worn-out constitution, and of failure of the *vis vitæ*. In all forms of dropsy there is a remarkable liability to relapse.

The duration of the disease varies with many circumstances which it is impossible to enumerate, but which have all an important influence. There is an acute form of dropsy which has proved fatal in a few weeks, and there are instances on record of persons living for a long series of years labouring under a greater or less degree of it. Ascites is perhaps the most generally fatal of all the forms of dropsy, and certainly that over which medicine exerts the least power. It is hardly necessary to say how much, in the successful issue of a dropsical case, depends upon bringing it early under medical treatment, before the foundations of health are sapped, and the disease advanced to that point where, from being one of function, it becomes complicated with structural derangement.

The remarks now offered have been intended to show that the pathology of dropsy assimilates itself

very closely with that of other diseases. No sufficient grounds have been advanced for connecting it peculiarly (as the old pathologists did) with the absorbent system, or with a state of morbid tenuity of blood.

In the treatment of dropsy we are to aim, in the first place, at restoring a due state of the circulating system. Secondly, where this cannot be done, or while the measures for effecting it are in operation, we are to promote the temporary reabsorption of the effused fluid. Thirdly, where the powers of the system are inadequate either to the one or the other, recourse must be had, when practicable, to surgical aid.

1. The means of relief calculated to attain the first object vary of course with the kind of dropsy present. In the acute, plethoric, or arterial dropsy, we are to lower the tone of the arterial system, and to lessen the impetus of the circulating fluids upon the exhalant capillaries. For this purpose it is sometimes necessary to have recourse to blood-letting, or to local depletion by cupping, or leeches. At other times the object may equally be gained by brisk purgatives, nitre, cream of tartar, and other relaxing saline medicines, by antimony, or colchicum. The utility of blood-letting in certain forms of dropsy has been established on the clearest evidence, but it is right to add, that so powerful a remedy is not *lightly* to be resorted to. In all cases of disease not accompanied by fever or inflammation, great caution

is required in the management of the lancet. In the case of dropsy, this is peculiarly necessary; first, on account of the debility which, if carried too far, blood-letting produces; and secondly, from its being so often associated with that *passive* enlargement of the heart, which does *not* admit of the detraction of blood. Bleeding in dropsy should never be pushed therefore to such an extent as to endanger the occurrence of syncope.

In dropsy from relaxation, or glandular obstruction, the indication of cure is to support the tone of the system, and to rouse the action of the absorbents. Among the *tonic* medicines most serviceable in dropsy, are the bitter infusions, the aromatic confection, camphor mixture, bark, steel, and wine. Of the *deobstruent* medicines the most powerful are mercury, squill, and ammoniacum.

2. With the second intention (that of promoting the temporary reabsorption of effused fluid), recourse is had to medicines which determine to the bowels and kidneys. The cathartics most useful in this view are those called *hydragogue*, in which class are ranked jalap, cream of tartar, elaterium, and gamboge. It is a remarkable fact, that in almost every case of general dropsy, active purging will do something towards the relief of the patient. It appears in a peculiar manner to excite the absorbent system to action. Of the diuretic medicines employed in dropsy, some are weakening, as digitalis, the acetate of potash, squill, and colchicum. Others are stimu-

lating, such as the spiritus ætheris nitrosi, the oil of turpentine, and juniper berries. The former are chiefly serviceable in thoracic, the latter in abdominal dropsy.

Great advantages are derived from combining these remedies. Where blood-letting is indicated, digitalis and occasional purging are applicable. The best effects have followed the union of digitalis or squills with mercury. There is probably no plan of treatment adapted to such a variety of cases as this. Digitalis may often be given with perfect propriety in combination with aromatics and tonics. Lastly, the powers of diuretic medicines are much heightened by mixture.

3. The surgical means of relief in dropsy are tapping and scarifications. Of their value I shall have a fitter opportunity to speak in the next chapter, when treating of the three principal varieties of dropsical effusion.

CHAP. VII.

DROPSY OF THE DIFFERENT CAVITIES.

Ascites—Its Symptoms—Causes—Peculiarities in its Treatment—Diagnosis of Hydrothorax—Symptoms of Hydropericardium—Remedies peculiarly applicable to thoracic Dropsy—Phænomena of Anasæra—Its Causes—Peculiarities in its Treatment.

HAVING explained in the last chapter the pathology of dropsical effusion, I proceed to offer a few observations on the chief varieties of general dropsy which meet us in practice. I shall principally direct my attention to the *symptoms* of these diseases, and to the selection of remedies for their removal.

1. ASCITES, or dropsy of the peritonæal cavity. This form of dropsy is readily known by the concurrence of the common symptoms marking the hydropic diathesis with swelling and fluctuation of the belly. Simple as these characters appear, there are occasions in which the diagnosis is difficult. Ascites has been mistaken for dropsical, or other-

wise diseased ovarium; and physicians have occasionally erred in their attempts to distinguish it from the tumour of pregnancy. Ascites in a few cases occurs alone, but more frequently it is associated with a degree of anasarca, and sometimes also with hydrothorax. The quantity of water collected in the belly is often enormous, amounting in some instances to upwards of a hundred pints. It is curious to observe how little inconvenience this occasions to the viscera among which it floats. The functions of the stomach and bowels are performed in most cases of ascites with tolerable regularity. The disease may occur in either sex, and at any age; but like the other forms of dropsy it is chiefly to be met with in advanced life.

The causes of ascites may be reduced to the following heads. It is, in the first place, a sequel of peritonæal inflammation, both acute and chronic, diffused and circumscribed. This form of ascites is accompanied with tenderness in some part of the abdomen, more especially in the right hypochondrium. It arises, in the second place, from diseased conditions of the solid glandular structures of the abdomen—the liver, spleen, and pancreas. In by far the larger proportion of cases the liver is the organ affected. On dissection it appears enlarged, scirrhus, tuberculated, or studded with hydatids. It is a commonly received opinion, that the dropsy which attends diseased liver is referable to the difficulty with which the blood is transmitted through the vena portæ, and its consequent stagnation, or

congestion in the capillaries. This notion is in some measure confirmed by the enlargement which is always more or less observable at the same time in the superficial veins of the abdomen. Something more, however, is probably necessary to constitute a dropsical tendency. It would be impossible, otherwise, to explain why ascites should be so common an attendant on ulcerated stomach and bowels, and such chronic disorganizations as denote a general *decay* of the whole frame. The constitutional origin of ascites is rendered still more evident, in the third place, by its arising from causes exterior to the abdomen such as produce dropsy generally, more especially structural diseases of the heart.

The treatment of ascites must of course to a certain degree vary with the cause which gives rise to it. When it depends upon organic disease of the abdominal viscera, it is nearly beyond the reach of art. When it occurs along with extensive anasarca, it denotes so great an extent of constitutional disturbance as almost to preclude the hope of permanent recovery. That form of ascites which partakes of the character of a *local* dropsy, and is connected with inflammatory action in the peritonæal membrane, is the most under our control. The application of leeches, blisters, and fomentations, with the liberal use of mercury, and of saline aperients, has in many of these cases succeeded perfectly in removing the complaint. Where our object is merely to afford temporary relief, the best system of treatment consists in the occasional use of hydragogue cathartics,

especially jalap, cream of tartar, and elaterium, employing in the intervals such drugs as combine a *deobstruent* with a diuretic quality, more particularly squills and mercury.

When the accumulation of water becomes so great as to interfere with the breathing, or to create distress by distention of the abdominal parietes, recourse must be had to the *paracentesis abdominis*. It is a commonly received opinion that tapping, once performed, is a complete bar to the permanent recovery of the patient ; but I doubt the correctness of this notion, and I am sure it has often proved hurtful by inducing practitioners to delay the operation too long. I am far from wishing to advocate a hasty employment of the trocar, but I have seen more danger from inordinate distention, than I could ever trace to tapping.

2. HYDROTHORAX, or dropsy of the thoracic cavity. The diagnostic symptoms of this form of dropsy are very fallacious. Sometimes we are confident of finding water in the thorax, when that cavity is perfectly free from disease. At other times we observe the thorax full, when we had no suspicion of the complaint existing*. The symptoms usually set down as denoting the presence of water in the chest are of two kinds ;—those that indicate dropsy generally, and those that mark mechanical impe-

* Vide Morgagni, Letter xvi. *passim*. This chapter contains some valuable remarks on the symptoms of thoracic dropsy, and deserves an attentive perusal.

diment to the function of respiration. In some rare instances it may be possible to detect the presence of fluid in the thorax by percussion, and external examination, but I am well convinced this can never be held out as a common means of judging of the disease. Of the general symptoms of dropsy I have already spoken. The local symptoms are difficulty of breathing, aggravated by exertion, and by the recumbent posture; a sense of weight, or oppression, referred to the pit of the stomach, and referable probably to the pressure of the effused fluid upon the diaphragm; starting from sleep in a fright; cough; a livid or mottled colour of the lips, such as may be observed whenever respiration is obstructed by a mechanical cause, and the blood is imperfectly oxygenated. In the latter stages of the complaint it is not uncommon to find the expectoration tinged with blood.

Many attempts have been made to ascertain the symptoms peculiar to hydropericardium. This form of dropsy generally exists along with hydrothorax, but sometimes it is present in a degree to which other appearances do not correspond. On the 5th February 1823, I examined the body of a woman in whom the pericardium was so enormously distended as to contain eighteen ounces of serum, besides an enlarged heart. In this case there were no symptoms by which the *exact* nature of the case could have been foretold. It is commonly stated, that in dropsy of the pericardium the pulse is intermittent and irregular, with an unusual *oppression* at

the heart, palpitation, and that kind of paleness and anxiety of countenance which is generally to be observed when the heart labours exceedingly in its functions. The early appearance of œdema of the face has been also adduced by some as indicating dropsy of the pericardium.

Of the causes of thoracic dropsy I have nothing to state beyond what was urged in the preceding chapter. In its treatment the only peculiarity worthy of note is, that here the influence of diuretic medicines is more decided than in any other form of dropsy, and that digitalis is of all others the most generally successful. Paracentesis thoracis has been often proposed, but seldom practised, owing, I presume, in a great degree, to the uncertainty in the signs of hydrothorax. There is no reason to believe that it would afford less relief than the corresponding operation on the abdominal cavity, or that any particular danger attends it.

3. ANASARCA, or dropsy of the cellular membrane. This membrane, so extensively diffused throughout the body, is moistened by a fluid thrown out by its arterial exhalants. In various ways the quantity of this fluid may be increased, constituting the disease called anasarca. The *pathognomonic* symptom of it is the pitting of the skin on pressure. The affection usually commences in the feet and legs, perceptible perhaps at night only. As the disease advances the swelling becomes general over the body. The skin is dry and parched. There is a peculiar sallowness

of countenance to be observed, with torpor, and disposition to sleep. In severe cases the cuticle gives way, and serum oozes through the pores of the skin. Where the *habit* of body is bad, erysipelatous inflammation and gangrene are apt to follow. In worn-out debilitated constitutions it is not uncommon to find anasarca associated with petechiæ and ecchymoses.

Pathologists in all ages have occupied themselves in enumerating the several causes from which anasarca may originate. Without following them into details, it may be useful to point out those which are most frequently observed to operate.

1. Local anasarca, or œdema, sometimes arises from pressure accidentally made on veins, as by the gravid uterus, swelled glands in the groin or arm-pits, or a tight garter. The same result occasionally follows, even in healthy states of the system, from a too long continuance in the erect posture.

2. General anasarca arises from a variety of causes which concur in producing a debilitated state of the whole body, and more particularly perhaps of the venous system. Hence it is that anasarca succeeds severe hæmorrhagies, natural or artificial, fevers, and fluxes; and that it occurs so frequently in the latter stages of diabetes, phthisis pulmonalis, and amenorrhœa. Under such circumstances the dropsical symptoms commence slowly, and as it were *imperceptibly*. There are instances, however, in

which the disease comes on suddenly, and to the causes of this *acute* form of anasarca I shall next advert.

3. Exposure to cold and damp has frequently been followed by dropsical swellings. I have known them to commence within forty-eight hours from the application of the exciting cause. In this variety of the disease the pulse will commonly be found full and strong, with perhaps some degree of hardness. There will be present at the same time symptoms denoting an affection of the thoracic organs,—tightness across the chest, with cough and dyspnœa, aggravated by exertion and the recumbent posture, and producing *headache*.

4. General anasarca arises, in the fourth place, from excess in the use of spirituous liquors. When its attack is sudden, the dropsy is of the *arterial* kind, and attended with the symptoms just described as accompanying hydropic effusion from cold.

5. Another cause of anasarca is disturbance in the uterine functions. I have already had occasion to notice that amenorrhœa exhibits itself in two different habits of body, and is accompanied by two opposite trains of symptoms. The dropsy which attends this state of disease is sometimes of the true *atonic* kind, but occasionally it is observed along with an *incompressible* pulse, hæmorrhages from the

nose and stomach, apoplectic symptoms, and others denoting plethora and increased arterial action.

6. The only other circumstance requiring attention in the pathology of anasarca, is its connexion with some of the febrile eruptions. It has long been known that dropsy, particularly in the form of anasarca, occasionally follows scarlet fever. The same phænomenon is sometimes observed as a sequel of measles, small-pox, and erysipelas. It has been conjectured that the dropsical tendency is here dependent on some morbid condition of the *cutaneous exhalants*, the consequence of the eruption, but there are no sufficient grounds for this notion. The accompanying symptoms commonly point out some obscure affection of the heart and lungs existing at the same time. Under all circumstances, the practitioner will do right to view this form of disease as of *constitutional* origin, and to be more solicitous about the state of the *system* than of the skin.

From the remarks now offered, it will appear that the pathology of anasarca is closely connected with that of hydrothorax. In many cases these forms of dropsical effusion co-exist, and the remedies are the same for both. Blood-letting is better adapted for anasarca than for any other variety of dropsy. Where it occurs suddenly from exposure to cold, or excess in the use of spirits, blood-letting is often not only useful, but actually indispensable. The blood drawn is sometimes cupped and buffy, but more

commonly it will have the appearance (hardly, however, less satisfactory) of great firmness of coagulum. The effects of blood-letting will be materially aided by the employment of purgatives, saline and antimonial medicines, and the relaxant diuretics, especially digitalis, and the acetate of potash.

It is unnecessary to say that this plan of treatment is adapted only to one variety of anasarca. In all cases, the practitioner, by tracing the origin of the disease, and weighing accurately the accompanying symptoms, must form for himself some idea of its *proximate cause*. He will thus occasionally find the necessity of *supporting* the system, instead of lowering it; and to effect this he will have recourse to the use of tonics (bark, camphor, bitters, and aromatics), in combination with the stimulant diuretics.

Considerable diversity of opinion has prevailed regarding the propriety of scarifications in anasarca. By some they are utterly condemned, as leading to erysipelatous inflammation and gangrene, while in the hands of others they have proved eminently serviceable. This may partly be attributed to differences in the mode of operating. It appears from comparative trials which have been instituted, that a single deep scarification, penetrating the cutis vera, is much more efficacious, and less likely to produce unpleasant consequences, than the numerous but slighter punctures which are commonly made*.

* For this hint I am indebted to Mr. Ewbank, assistant surgeon of St. George's Hospital.

It cannot indeed be denied, that in languid habits of body, scarifications of all kinds are occasionally dangerous. The relief which they afford, however, is often surprisingly great, and compensates the degree of risk which they bring with them.

Blisters and issues have been recommended in the cure of anasarca, but they are not advisable. Frictions, oil-skin stockings, and bandages, are useful where the effusion of serum arises from local obstructions, but they are unimportant in that more numerous class of cases, in which dropsy of the cellular membrane is associated with a disposition to effusion in the great serous membranes of the thorax or abdomen.

CHAP. VIII.

CHRONIC CUTANEOUS DISEASES.

Outline of their Pathology—Causes operating generally in the Production of chronic cutaneous Diseases—Causes operating locally—General System of Treatment—Division into constitutional and local Affections of the Skin—Classification of Remedies—Notice of the leading Varieties of chronic cutaneous Disease—Strophulus—Porrigo—Acne—Herpes—Lepra—Elephantiasis—Psora.

A GREAT variety of affections are comprehended under the head of *chronic cutaneous diseases*. Expanded as they have been by some authors into a nosological system, and each made the subject of distinct investigation, it may appear impossible, consistently with the design of this work, to enter upon a discussion of them with any prospect of advantage to the student. I am indeed fully sensible, that in acquiring a knowledge of these affections, attention to detail is requisite. Still it behoves the student to be aware that there are certain general principles

which connect all the chronic diseases of the skin together, and link them in with the great chain of constitutional disorders. To point out these, although in a very summary manner, may possibly be useful. All that I shall attempt further, is to direct the attention of the reader to the leading *natural* divisions of chronic cutaneous disease, hoping thus to lay before him the elements of a study which the detailed descriptions of authors may hereafter assist him in pursuing, but a complete knowledge of which can alone be attained by constant attention, and extensive opportunities of observation.

Considering the diversity in the aspects of chronic cutaneous disease, there is less variety than might have been expected in their *exciting causes*. They may be distinguished into such as operate *generally*, and such as act through the medium of the skin itself.

1. In the first class may be ranked the presence of a poison in the system. This is very often the poison of lues, which, in common with other secondary effects, produces every possible variety of *cutaneous* disease. At other times the poison is that of mercury. Hence it is that cutaneous eruptions constitute so important a part of that complaint to which modern pathologists have given the title of pseudo-syphilis. Sometimes the poison is of a more familiar kind, such as shell-fish, bitter almonds, and other indigestible articles of diet, the influence of which, however, is only partial and transitory.

2. The next source of cutaneous disease is simple *debility*. On this account it is that cutaneous eruptions bearing the character of ecthyma are observed in persons convalescent from tedious diseases, and others of a porriginous character in scrofulous children. Closely allied to this is the state of *cachexia*, or that depraved habit of body which is the consequence of bad food, improper habits, want of air and exercise, irregular hours and modes of living. It has been conjectured that the *blood* becomes altered in its qualities in these cases, loaded perhaps with saline particles, and by thus irritating the cutaneous capillaries produces different varieties of eruption. This was a favourite doctrine of the humoral pathologists, and many strong arguments might still be adduced in support of it. Although but little talked of in modern times it preserves its influence on practice, as will be apparent by considering the extensive use now made of the alterative vegetable decoctions.

3. A weakened or cachectic state of the system is not, however, the only one in which chronic cutaneous disease occurs. In some instances there is a degree of plethora present. In the language of the old humoral pathologists the blood is too rich, and stimulates the vessels through which it passes. This is particularly observable in the pustular eruptions to which young persons are subject about the period of puberty (*acne simplex* and *punctata* of Willan).

4. A disordered state of the stomach and bowels is one of the most common of the causes of chronic

cutaneous disease. Sometimes this consists merely in the lodgment of crudities in the alimentary canal. At other times the presence of acid in the stomach appears to be the direct occasion of the cutaneous affection. Hence the use of purgatives and of absorbents in the chronic diseases of the skin.

5. Chronic cutaneous disease is sometimes observed in combination with symptoms denoting disorder of the thoracic viscera. I have already had occasion to illustrate this pathological principle when treating of purpura. Lastly, I have seen a few cases which point to a connexion between *lepra*, and an affection of the brain and nervous system. I am well convinced of the dependence of erysipelas on some disordered state of the encephalon, and can therefore imagine that it may perhaps operate more widely in the production of cutaneous disease.

Besides these general sources of cutaneous affections, there are others whose influence is very extensive, which may be referred more immediately to the skin itself. 1. The first I shall notice is a peculiar *irritability*, or delicacy of the skin. This is the probable cause of those numerous cases of *strophulus* which occur in infants, whose skin is as yet unaccustomed to the stimulus of air and soap. This irritable state of the skin often exists through life, and hence it is that leeches and blisters produce in such habits very unpleasant effects. It is in some instances *hereditary*. The principle appears to be one of very general application in the pathology of cutaneous complaints.

2. The next cause of chronic cutaneous disease which requires attention, is want of cleanliness. It is doubtless on this account that obstinate cutaneous affections are so much more common among the lower than the higher classes of society. Hence the great value of warm ablution in their treatment.

3. The third is local irritation. Its influence in the production of cutaneous disease is generally acknowledged, and is indeed very extensive. The principle is fully shown in the common effects of blisters, plasters, and antimonial lotions; but it is chiefly exemplified in those eruptions which follow the long-continued stimulus of flour, sugar, lime, or soap, constituting different varieties of eczema and psoriasis.

4. The last source of chronic cutaneous disease which I shall notice is contagion. There are not many cases, however, to which it applies. Psora and tinea capitis are perhaps the only unequivocal proofs of it.

In laying down a few general principles applicable to the treatment of these affections, I must first advert to the necessity of distinguishing them according as they are constitutional or local. Chronic cutaneous diseases might be divided in fact into two classes,—such as implicate the constitution to a greater or less degree, and such as are decidedly local, arising from local causes, remediable by local means, and in the ordinary course of

events not influencing the system at any period of their progress. There is a foundation in nature for this distinction; but in other respects these two classes of diseases are too intimately connected to make it possible to discuss them separately. In practice, however, it must be remembered, that where the disease is essentially local, topical remedies are required. On the other hand, where the constitution is in fault, local measures are of little or no avail. It is true that in the treatment of the latter kinds of cutaneous disease we are often glad to have recourse to local means, even though their influence be but insignificant, for a large proportion of such affections are unaccountably obstinate.

Further, an attempt should always be made, in the first instance, to determine the cause of the complaint; for this, if successful, will at once point out the proper remedy. When the origin of the disease cannot be ascertained, the general system is to be looked to, and according as a state of fever, of cachexia, of debility, or plethora be present, remedies are to be resorted to adapted to the circumstances of the case. Attention is to be paid, in the third place, to the functions of the brain, the heart, the stomach, and the bowels, and any irregularities in them corrected by appropriate means. Lastly, the state of the skin is to be accurately examined, with a view to determine whether the superficial vessels are *irritable*, requiring *soothing* medicines, or in that state of *torpor* which will be benefited by *stimulating* applications.

The constitutional remedies applicable in cases of chronic cutaneous disease are purgatives, absorbents, tonics, alteratives, febrifuges, and lastly, such medicines as exert a peculiar effect upon the vessels of the skin. This class of drugs will naturally be resorted to whenever we fail in detecting some obvious cause for the complaint ; and they ought frequently to be varied until we find one that fulfils our expectations. Those which experience has shown to be the most efficacious are dulcamara, sulphur, pitch, mercury, antimony, and arsenic. The local applications employed in cutaneous diseases are divisible into three kinds ;—the mild, the cooling, and the irritating. To the first belong cold cream, pomatum, and the vapour of warm water. To the second, lotions of Goulard, of vinegar, of the muriate of ammonia, and the ointments of zinc and of sugar of lead. Of the irritating applications, the variety is infinite. Those in most general use are citrine ointment, sulphur ointment, the decoction of white hellebore, spirituous lotions, and lotions containing either lunar caustic or corrosive muriate. There is a third class of remedies employed in the treatment of chronic cutaneous complaints which may be considered to possess a double influence, that is to say, to act both generally and locally. Of this kind are sulphureous baths, mineral waters, and the warm and cold sea water bath.

A brief sketch of the principal varieties of chronic cutaneous disease will conclude the view which I

proposed to take of this subject, and complete at the same time the design of the present work.

Dr. Willan has divided chronic cutaneous diseases into eight classes (founding his arrangement upon the appearances of the eruption in its most perfect state). These are pimples, scales, rashes, blebs, pustules, vesicles, tubercles, and spots. Into the details of this classification, now so generally adopted in this country, it is not my intention to enter. I shall merely select for the first instructions of the student a few of the simplest and most frequently observed genera, referring him to Dr. Bateman's excellent work*, to complete his knowledge of this very useful branch of medical literature.

1. The earliest form of chronic cutaneous disease ever observed is STROPHULUS. It comprises several papular affections peculiar to infants, and known by the names of red gum and tooth rash. The affection is attributable to the very vascular and irritable condition of the skin in infant life, and is in some cases connected with indigestion. In its ordinary form, however, it is consistent with a state of perfect health, and requires little, if any, medical treatment.

2. The next form of chronic cutaneous disease observable in the progress of life is that which occurs

* A practical Synopsis of cutaneous Diseases, by Thomas Bateman, M.D. London, 1813.

to children from the period of dentition up to the fourth or fifth year of life, or even later,—PORRIGO. It is characterized by an eruption of straw-coloured pustules, scattered at times over the whole body, but principally observable on the scalp, on the face, behind the ears, and about the ancles. When it affects the scalp, it constitutes the *tinea capitis*. By neglect this disease assumes a most frightful aspect. The pustules discharge a viscid fluid, which concretes into scabs, and the face (when that part is attacked) becomes enveloped in a mask, the *crusta lactea* of old authors. Porriginous eruptions occur in different states of the system. They are often owing to a gross diet, and connected with plethora. At other times they arise in feeble and flabby habits, and appear in combination with cachexia and marasmus. *Tinea capitis* (the *porrigo scutulata* of Willan) undoubtedly spreads by contagion. The treatment of this form of disease must be regulated by the varying circumstances under which it occurs.

3. ACNE is a cutaneous disease very frequent from the age of puberty to the twentieth or twenty-fifth year of life. It is characterized by an eruption of papulæ in the face (especially in the forehead and chin), as well as on the neck, shoulders, and breast. It never descends to the lower parts of the trunk, or to the extremities. It is common to both sexes, but the most severe cases of it are seen in young men. Persons labouring under it enjoy for the most part good general health, and are often unable to refer the complaint to any obvious exciting cause. The

eruption occasionally recedes for a time, and recurs, more especially after violent exercise, great heat of the weather, a more liberal use of wine, or any unusual excitement of the cutaneous circulation. Except in females this complaint seldom calls for the attention of medical men. It is altogether a local disease, and neither requires, nor is benefited by a low diet, or by purgatives, alteratives, or other internal medicines. At the same time it is to be remarked that external applications are equally without influence. The disease therefore usually proceeds to its natural but distant termination.

4. Of the chronic vesicular diseases of the skin the most important is HERPES. It partakes, however, very much of the nature of the exanthemata. It is attended in many instances by considerable constitutional disturbance. The vesicles pass through a regular course of increase, maturation, and decline, terminating in most cases in about a fortnight, or three weeks. Herpetic vesicles are distinguished by their occurring in distinct but irregular clusters, appearing in quick succession, being set near together, and upon an inflamed base, which extends some way beyond the margin of each cluster. The most frequent form of the disease is the herpes zoster, or *shingles*, in which the eruption appears on the abdomen, but is observed also in some cases on the extremities, or breast. Young persons, from fifteen to twenty-five years of age, are commonly the subjects of this disease. Very little is known regarding its causes. It is most frequent in summer and autumn,

and seems in some cases to arise from exposure to cold after violent exercise. It is always slight, seldom confining the patients to the house, or occasioning any debility. Its course cannot be shortened by internal medicine, and it does not require any external applications. In hot countries herpetic *ring-worms* (*herpes circinnatus*) often prove both tedious and severe, but in this country they follow the usual progress. That variety of the disease termed *herpes labialis* frequently appears as an idiopathic affection, originating from cold and fatigue. It is then preceded for two or three days by nausea, lassitude, languor, and other feverish symptoms. It is more commonly symptomatic of some internal disorder.

5. **LEPRA** is the most common, the most obstinate, and upon the whole the most formidable of all the varieties of chronic cutaneous disease. In its simple form it is recognised by its circular patches, about the size of a half-crown piece, covered with small shining scales, encircled by a dry, red, and slightly elevated well-defined border. It occurs at all periods of life, and under every variety of external circumstance. Except when very severe, it is not attended with much uneasiness in the part, and hardly ever with constitutional disturbance. Closely allied to lepra in its appearance and general pathology is **PSORIASIS**, which indeed differs only from the former in the irregular shape of the patches, and their being frequently accompanied by *rhagades* or fissures of the skin. The treatment of lepra and psoriasis has long been the opprobrium of physic. I have derived

more advantage from the combination of sulphur with the carbonate of soda, than from any other medicine which I could name ; but the disease often continues, even through life, in spite of every effort of medical art.

6. One of the most singular varieties of chronic cutaneous disease is the ELEPHANTIASIS, characterized by a thickened and rugous state of the skin. Two diseases, differing in some respects from each other, have been described under this name. The one is the elephantiasis Græcorum*, a loathsome disease, affecting principally the face and joints. The other is that familiarly known by the name of the Barbadoes leg. Of the origin and treatment of these diseases very little is known, and as they are rare in this country, I shall content myself with having thus briefly alluded to them.

7. The last disease which I shall notice is PSORA, or SCABIES. This troublesome complaint usually assumes the form of small vesicles intermixed with pustules, but its aspects are very various. It may at all times be distinguished, however, by the incessant and importunate itching which attends it, the constitution being perfectly unaffected. It appears occasionally on every part of the body, the face alone excepted. Its most usual seat is about the wrists and fingers, the fossa of the nates, and flexures of the

* So called because originally noticed by Aretæus, and the succeeding Greek writers.

joints. The itch is highly contagious. It consists essentially in the presence of a minute insect burrowing and breeding in the skin. This insect was first accurately described by Bonomo in 1683, and is now called the *acarus scabiei*. To this, as to all other insects, sulphur is a complete poison ; and it is gratifying to reflect, that the last disease which I have occasion to bring before the notice of the student, is one for which Medicine may justly boast of possessing a *specific*.

APPENDIX.

FORMULÆ

REFERRED TO IN THE PRECEDING PAGES.

No. 37.

R. Pulveris rhei scrupulum,
Potassæ sulphatis semidrachmam,
Aquæ menthæ piperitæ sescunciam ;
Misce. Fiat haustus.

No. 38.

R. Hydrargyri submuriatis,
Pulveris antimonialis, singulorum grana quin-
que,
Hydrargyri sulphureti rubri granum ;
Misce. Fiat pulvis catharticus, hora somni su-
mendus.

No. 39.

R. Pulveris rhei grana duo,
—— capsici granum,
Extracti anthemidis q. s. ut fiat pilula omni
meridie ante prandium sumenda.

No. 40.

R. Decocti aloes compositi drachmas sex,
Aquæ cinnamomi drachmas quatuor ;
Misce. Fiat haustus omni meridie sumendus.

No. 41.

R. Infusi rosæ unciam,
Magnesiæ sulphatis drachmam,
Tincturæ cardamomi compositæ drachmam,
Acidi sulphurici diluti guttas decem,
Syrupi drachmam ;
Misce. Fiat haustus semel vel bis die sumendus.

No. 42.

R. Infusi cuspariæ unciam,
Carbonatis ammoniæ grana sex,
Tincturæ cinnamomi compositæ drachmam ;
Misce. Sumat haustum bis die.

No. 43.

R. Infusi cascarillæ drachmas octo,
Ammon. subcarbonat. grana quinque,
Conf. aromat. grana decem,
Spt. armoraciæ compos. drachmas duas ;
Misce. Fiat haustus ter de die sumendus.

No. 44.

R. Misturæ camphoræ drachmas sex,
Tinct. guaiaci ammoniati drachmas duas,
Mucilaginis,
Syrupi croci, singulorum drachmam ;
Misce. Sumat haustum ter die.

No. 45.

R. Infusi armoraciæ compositi unciam,
Spiritus ammoniæ aromatici semidrachmam,
Syrupi zingiberis drachmam;
Misce. Fiat haustus sextis horis adhibendus.

No. 46.

R. Olei terebinthinæ drachmam,
Mellis drachmas duas,
Aquæ carui drachmas sex;
Misce. Fiat haustus bis vel ter die sumendus.

No. 47.

R. Pulveris ipecacuanhæ grana quindecim,
Aceti scillæ drachmam,
Aquæ menthæ sativæ unciam;
Misce. Fiat haustus.

No. 48.

R. Pulveris ipecacuanhæ grana tria,
Aceti destillati unciam;
Misce. Fiat haustus quartis horis repetendus.

No. 49.

R. Cretæ præparatæ grana decem,
Pulveris ipecacuanhæ grana tria,
Aquæ menthæ sativæ drachmas decem;
Misce, et fiat haustus tertia quaque hora repetendus.

No. 50.

R. Misturæ ammoniaci drachmas sex,
Aceti scillæ drachmam,
Tincturæ opii guttas sex,
Aquæ carui drachmas tres ;
Misce. Tertia vel quarta quaque hora sumendus.

No. 51.

R. Tincturæ scillæ guttas decem,
Acidi nitrici guttas sex,
Extracti hyoscyami grana tria,
Aquæ puræ unciam cum semisse ;
Misce, ut fiat haustus, tertiis horis repetendus.

No. 51.*

R. Carbonatis ferri drachmam cum semisse,
Rhei pulveris grana quindecim,
Olei chamæmeli guttas quinque,
Conservæ rosæ q. s. ut fiat massula, in pilulas
viginti æquales dividenda.
Capiat tres mane et meridie quotidie, superbibendo
guttas quindecim Elixir vitrioli (Acid. sulphur.
aromat. Pharm. Edin.) in cyatho aquæ
vel infusi zingiberis.

No. 52.

R. Extracti conii grana tria,
Magnesiæ sulphatis scrupulum,
Aquæ carui drachmas quinque,
Syrupi croci drachmam ;
Misce. Fiat haustus ter indices sumendus.

No. 53.

℞. Succī spissati lactucæ virosæ drachmam dimi-
diam,
Pulv. tragacanth. compositi scrupulum,
Potassæ nitratis scrupulos duos,
Misturæ amygdalæ uncias quatuor;
Misce. Capiat cochl. unum amplum ter die.

No. 54.

℞. Aquæ puræ unciam,
Syrupi drachmas tres,
Sodæ subcarbonatis grana viginti quatuor,
Vini ipecacuanhæ drachmam,
Tincturæ opii minima sex;
Misce. Sumat partem sextam quarta vel sexta
quaque hora.

No. 55.

℞. Linimenti saponis unciam cum semisse,
Olei succini semunciam;
Misce. Fiat embrocatio.

No. 56.

℞. Antimonii tartarizati scrupulos duos,
Tincturæ lyttæ unciam,
Aquæ rosæ (calidæ) uncias duas;
Solve antimonium tartarizatum in aqua rosæ, dein
adjice tincturam. Fiat embrocatio.

No. 57.

℞. Spiritûs ammoniæ compositi,
—— lavandulæ compositi, singulorum un-
ciam ;

Misce. Sumat drachmam ex aqua, urgente lan-
guore.

No. 58.

℞. Liquoris calcis uncias tres cum semisse,
Infusi gentianæ comp. uncias duas,
Liquoris potassæ drachmam cum semisse,
Tincturæ cardamomi compositæ drachmas tres;
Misce. Fiat julepium, de quo sumat cochl. tria
majora bis die.

No. 59.

℞. Oxydi bismuthi grana quinque,
Pulv. tragac. comp. grana decem ;
Misce. Fiat pulvis bis vel ter die sumendus.

No. 60.

℞. Misturæ amygdalæ unciam,
Tincturæ opii guttas viginti,
Syrupi drachmam ;
Misce. Fiat haustus.

No. 61.

℞. Misturæ cretæ unciam,
Confect. aromaticæ scrupulum,
Tinct. cinnamomi semidrachmam,
Tincturæ opii guttas quinque ;
Sumat haustum post singulas dejectiones liquidas.

No. 62.

R. Infusi cascarillæ uncias sex,
Pulveris kino compositi drachmam,
Syrupi papaveris semunciam ;
Misce. Fiat mistura restringens, cujus sumat
partem sextam sextis horis.

No. 63.

R. Aquæ carui unciam,
Tinct. cardam. comp. drachmam,
Spt. ammon. compos. guttas decem,
Syrupi croci drachmam ;
Misce. Fiat haustus.

No. 64.

R. Pulv. rhei grana viginti,
Confect. arom. grana quindecim,
Aquæ menthæ piperitæ unciam cum semisse ;
Misce. Fiat haustus.

No. 65.

R. Olei ricini semunciam,
Mucilaginis acaciæ drachmas tres,
Aquæ pimento drachmas sex,
Syrupi drachmam,
Tincturæ opii guttas quindecim ;
Misce. Fiat haustus sextis horis sumendus.

No. 66.

R. Extract. coloc. comp. grana quinque,
Hydrarg. submur. grana quinque,
Opii granum ;
Misce. Fiant pilulæ duæ.

No. 67.

℞. Hydrarg. submur. grana duo,
Pulv. scammonæ grana quatuor,
Sacchari purificati grana duo;
Separatim in pulverem tere, et misce. Fiat pulvis
aperiens alterna nocte sumendus.

No. 68.

℞. Pil. hydrarg. grana quindecim,
Pulv. ipecacuanhæ grana tria;
Misce. Divide in pilulas sex æquales; sumat infans
unam omni hora donec alvus responderit.

No. 69.

℞. Infusi rhei drachmas duas,
Sulphatis potassæ grana quindecim,
Aquæ carui drachmas quatuor;
Misce. Fiat haustus bis die sumendus.

No. 70.

℞. Cascarillæ cort. contusi,
Calumbæ radic. incisæ, sing. drachmam,
Aquæ ferventis uncias sex.
Colato liquori adde
Tincturæ calumbæ drachmas tres,
Spt. amm. compos. guttas triginta,
Syrupi aurant. drachmas tres.
Sumat drachmas sex pro dosi bis vel ter die.

No. 71.

℞. Confectionis sennæ unciam,
Sulphuris loti semunciam,
Syrupi rosæ, q. s. ut fiat electuarium, cujus
sumat cochlearia duo (vel tria) minora omni
mane.

No. 72.

℞. Unguenti sambuci,
Pulveris gallarum, sing. semunciam,
Liquoris plumbi subacetatis drachmam ;
Misce. Fiat unguentum.

No. 73.

℞. Balsam. copaibæ guttas quindecim,
Vitell. ovi q. s.
Aquæ cinnamomi,
——- destillatæ, sing. drachmas quinque,
Syrupi drachmam ;
Misce. Fiat haustus ter die sumendus.

No. 74.

℞. Infus. gent. comp.
Aquæ cinnamomi, sing. semunciam,
Sodæ carbonatis grana quindecim,
——- tartarizatæ drachmas duas ;
Misce. Fiat haustus.

No. 75.

R. Pulveris myrrhæ,
—— rhei, singulorum scrupulos duos,
Aloes socotr.
Extr. chamæmeli, singulorum semidrachmam,
Olei chamæmeli guttas decem ;
Misce. Divide in pilulas triginta; sumat duas bis die.

No. 76.

R. Misturæ camphoræ unciam,
Spt. ammon. compos.
Spt. lavandulæ comp.
Syrupi croci, sing. drachmam ;
Misce. Fiat haustus, urgente languore sumendus.

No. 77.

R. Infusi rosæ sescunciam,
Acidi sulphurici diluti minima quindecim,
Syrupi drachmam ;
Misce. Fiat haustus quartis horis repetendus.

No. 78.

R. Aluminis scrupulum,
Conservæ rosæ caninæ drachmam ;
Misce. Fiat bolus sextis horis sumendus.

No. 79.

R. Decocti cinchonæ drachmas decem,
Acidi sulphurici diluti guttas viginti quinque,
Tinct. cardam. compos.
Syrupi aurantiorum, ana drachmam ;
Misce. Fiat haustus ter indies sumendus.

No. 80.

R. Misturæ camphoræ uncias quinque,
Spt. ammoniæ foetid. drachmas tres,
Syrupi croci drachmas quatuor ;
Misce. Fiat julepium antispasmodicum, cujus su-
mat cochlearia duo pro dosi.

No. 81.

R. Misturæ assafoetidæ uncias quinque cum se-
misse,
Tincturæ valerianæ ammoniatæ semunciam ;
Misce. Sumat partem quartam ter die.

No. 82.

R. Valerianæ radicis semunciam,
Macera per horas duas vase clauso in
Aquæ ferventis unciis octo.
R. Colati liquoris uncias sex,
Tincturæ castorei,
Syrupi croci, ana semunciam ;
Misce. Sumat cochl. duo majora urgente spasma.

No. 83.

R. Ferri subcarbonatis,
Calumbæ pulveris, sing. grana quinque ;
Misce. Fiat pulvis bis die sumendus.

No. 84.

R. Ferri subcarb. drachmas tres,
Syrupi aurant. unciam,
Pulveris cinnamomi compositi drachmam ;
Misce. Fiat electuarius; sumat drachmam bis
die.

INDEX.

A.

Abercrombie, Dr.	23, 32
Aberration, mental	13
Abernethy, Mr.	295
Acne	421, 427
Adair, Dr.	384
Alison, Dr.	188
Amaurosis	55
Amenorrhœa	324
Amentia	82
Anasarca	413
Aneurism of Aorta	184
André, M.	126
Animation, suspended	198
Angina Pectoris	177
Antiscorbutics	378
Antispasmodics	74, 350
Anthelmintics	272
Apoplexy	22
—— sanguineous	33
—— serous	<i>ib.</i>
Aretæus	387
Ascarides	268
Ascites	408
Asphyxia	187
Asthma	148
Atrophy	275
Aura epileptica	59

B.

Baillie, Dr. 47, 134, 229, 234, 246,	262, 318
Baker, Sir George	260
Bateman, Dr.	386
Bath Waters	53
Bichat	189
Bile, Viscidity of	229
Bitters, Influence of	220

Blane, Sir Gilbert	110
Blackall, Dr.	400
Blue Disease	185
Bonomo	481
Brande, Mr.	296
Bree, Dr.	148, 159, 214
Bronchocele	133
Brodie, Mr.	200
Burrows, Dr.	94
Buxton, Waters of	53

C.

Cachexia	421
Cælius Aurelianus	117
Calculous Complaints	296
Calculi of the Kidney	299, 314
—— of the Bladder	299
—— of the Gall Bladder ...	227
—— Mulberry	303
—— lithic	300
—— phosphatic	304
Cancer Uteri	335
Chlorosis	325
Cholera	249
—— of India	251
Chorea	95
Chevalier, Mr.	197
Citois, Francis	259
Clutterbuck, Dr.	51
Coates, Mr.	142
Colica	255
—— biliosa	256
—— Pictonum	259
Coma	9
Convulsion	10
Cooke, Dr.	27, 50
Cooper, Sir A.	124
Cretinism	371

- Crusta lactea 427
 Cullen (his opinions quoted) 29, 69,
 77, 100, 154, 176, 373
 Cutaneous Diseases 419
 Cystic Oxyd 303
- D.
- Death (sudden) 190
 ——— by acute and chronic Disease 196
 ——— by Hæmorrhagy 195
 Deobstruents 367
 Diabetes 387
 Diarrhœa 242
 ——— bilious 244
 ——— chronic 246
 Diet, Regulation of 217
 Digestion, Process of 205
 Digitalis, Influence of 413
 Drowning, Death by 192
 Dropsy, arterial 400
 ——— general 399
 ——— of the Belly 408
 ——— of the cellular Membrane 413
 ——— of the Thorax 411
 ——— plethoric 400
 ——— Pathology of 397
 ——— ovarian 351
 Dysmenorrhœa 332
 Dyspepsia 202
 ——— primary 210
 ——— secondary 213
 Dyspnœa 145
- E.
- Earle, Mr. 42
 Eczema 423
 Elephantiasis 430
 ——— Græcorum *ib.*
 Emprosthotonos 108
 Emmenagogues 332
 Entirrhœa 286
 Epilepsy 57
 ——— hysteric 66, 345
- F.
- Farre, Dr. 185
 Fatuitas 82
 Fenwick, Dr. 273
 Fever, infantile 276
 Fits 12
 Floyer, Sir J. 156
 Fothergill, Dr. 36, 126, 178
- G.
- Gall-stones 227
 Gall-ducts, Spasm of 230
 Galvanism 201
 Glisson, Dr. 369
 Goitre 133
 Grapengiesser, Dr. 400
 Gravel, Fit of 315
- H.
- Haighton, Dr. 127, 131
 Halford, Sir H. 321
 Hamilton, Dr. 96, 103, 349, 323
 Hæmorrhage, abdominal 286
 ——— cutaneous 386
 ——— from the Urethra 319
 ——— Uterus . 335
 Hæmatemesis 287
 Hæmorrhagia Cerebri 16
 Hæmorrhœis 290
 Hæmaturia 219
 Hæmorrhœa petechialis 380
 Heart, Affections of the 170
 ——— enlarged 182
 ——— malformed 185
 Heberden, Dr. 177, 227, 321
 Hectic, infantile 165, 276
 Hemiplegia 40
 Henry, Dr. 390
 Hepatirrhœa 286
 Herpes 428
 ——— circinatus 429
 ——— labialis *ib.*
 ——— Zoster 428
 Hooping Cough 160
 Hunter, Dr. John 120
 Hydrophobia 116
 Hydropic Diathesis 402
 Hydrothorax 411
 Hydropericardium 412
 Hypochondriacism 14
 Hysteria 343

I.

Idiotcy	13
Ileus	262
Insanity	76
Intoxication, State of	9
————— Effects of	86, 211
Ischuria renalis	319

J.

Jaundice	225
———— green	234

K.

Kidney, Diseases of	314
———— Inflammation of	317
———— Abscess of	318

L.

Latham, Dr.	36, 179
Lead, Influence of	51, 259
Leipothymia	61
Lepra	422, 429
Leucorrhœa	341
Life, animal	189
———— organic	<i>ib.</i>
Lind, Dr.	376
Lithiasis	296
Lithic Diathesis	300
Lithontriptics	309
Lithotomy	313
Locke, Mr.	77
Lumbricus Teres	266

M.

Macgrigor, Sir J.	113, 115
Mania	13, 76
Marasmus	278
Marcet, Dr.	296
Marsh, Dr.	231
Melancholia	82
Mercury, Influence of .	56, 239, 283
Meynell, Mr.	120
Menorrhagia	335
Menstruation, painful	332
———— retained	325
———— suppressed	326
———— superabundant ..	335
Mesenteric Glands, Disease of .	278

Mind, Influence of, on Disease	87, 232, 212
--------------------------------	--------------

N.

Nephralgia	315
Nephritis	317
Neuralgia	126
Neurosis, primary	8

O.

Œdema	414
Opisthotonos	107
Ovarial Dropsy	351
Oxalic Diathesis	302

P.

Palpitation	174
Palsy	39
———— partial	48
———— saturnine	51
Paracentesis Abdominis	411
———— Thoracis	413
Paraplegia, cerebral	47
———— spinal	47, 51
Parry, Dr.	129, 177
Pearson, Mr. John	132
———— Dr. R.	169
Pemberton, Dr. .	56, 209, 223, 282
Percival, Dr.	93
Pertussis	160
Petechial Fever	381
Petechiæ sine Febre	384
Philip, Dr. W.	216
Phosphatic Diathesis	304
Piles	290
Pleurosthotonos	108
Poisons	31, 193, 194
Porrigio	427
Powell, Dr.	50
Pressure on the Brain	17
Prichard, Dr.	61, 72, 78
Prout, Dr.	296, 393
Psora	430
Psoriasis	423, 429
Purpura hæmorrhagica	381

R.

Red Gum	426
---------------	-----

- Respiration, artificial 199
 Rickets 369
 Rollo, Dr. 395
 S.
 Scabies 430
 Scarifications 417
 Scrofula 357
 Scrofulous Inflammation 360
 Scurvy 375
 Shingles 428
 Solander, Dr. 31
 Somerville, Dr. 139
 Spasm, tonic and chronic 11
 Spleen, Diseases of 214
 Squills 411
 Steel, Influence of 104, 331
 Stomach, Spasm of 222
 ——— Scirrhus of 223
 Strophulus 422, 426
 Suffocation, Death by 190
 Swan, Mr. 132
 Sydenham 95, 258
 Syncope 172
 T.
 Tabes mesenterica 276
 Tænia 267
 Tapping, Operation of 355
 Tenesmus 247
 Tetanus 106
 Tic Douloureux 126
 Tinea Capitis 423, 427
 Tooth Rash 426
 Town Air, Influence of ... 329, 364
 Travers, Mr. 55
 Trichuris 266
 Trismus 107
 V.
 Vetch, Dr. 55
 Vomiting, constant State of ... 223
 U.
 Urine, Diseases of .. 297, 319, 387
 Uterus, Hæmorrhagy from 335
 ——— Cancer of *ib.*
 W.
 Ward's Paste 294
 Watt, Dr. 162, 165
 Willis, Dr. 162, 389
 Wollaston 296, 394
 Worms 265
 ——— Origin of 271
 Wright, Dr. 116
 Y.
 Yelloly, Dr. 43, 46
 Yellow Gum 282
 Yellowness of the Skin 233

THE END.

ELEMENTS
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THEORY AND PRACTICE
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PHYSIC,

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BY

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